



# Report on the Health OF THE County Borough of Stockport,

FOR THE YEAR

**1898,**

BY

**CHARLES PORTER, M.D.,**

BACH. SURG., M.R.C.S., D.P.H., CAMB.,  
BARRISTER-AT-LAW.,

**MEDICAL OFFICER OF HEALTH,**

AND

Medical Superintendent of the Isolation Hospitals.

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STOCKPORT :

NEW CHESHIRE COUNTY NEWS CO., LIMITED, WELLINGTON STREET.

## SANITARY COMMITTEE, 1898.

—:o:—

*Chairman*—COUNCILLOR WILLIAM BELL.

*Vice-Chairman*—COUNCILLOR R. REDFERN.

THE MAYOR.

ALDERMEN GOULDEN AND HALLAM.

COUNCILLORS ALLCOCK, AXON, BARNETT, BELLAMY, BOSTOCK, BRETNALL, BROADHURST, CLARKE, GRADWELL, GRUNDY, HIDDERLEY, J. G. JOHNSON, JACOB LOMAS, MADDOCK, MARRIOTT, MINSHULL, STOTT, AND WILLIAM WOOD.

### MONDAY—FIXED MEETINGS.

January	10	April	4	June	27	September	19
„	24	„	18	July	11	October	3
February	7	May	2	„	25	„	17
„	21	„	16	August	8	„	31
March	7	„	30	„	22	November	28
„	21	June	13	September	5	December	12

AT 3 O'CLOCK P.M.

—:o:—

## HOSPITAL SUB-COMMITTEE.

—:o:—

*Chairman*—COUNCILLOR ALLCOCK.

ALDERMAN GOULDEN.

COUNCILLORS AXON, BARNETT, W. BELL, BELLAMY, HIDDERLEY, J. G. JOHNSON, MADDOCK, MARRIOTT, MINSHULL, REDFERN AND STOTT

MEETINGS—2-30 P.M., FOURTH MONDAY IN EACH MONTH.

## COUNTY BOROUGH OF STOCKPORT.

Public Health Department,

July 7th, 1899.

TO THE RIGHT WORSHIPFUL THE MAYOR, ALDERMEN, AND COUNCILLORS  
OF THE COUNTY BOROUGH OF STOCKPORT.

Mr. Mayor and Gentlemen,

The record which I now beg to submit to you in my Sixth Annual Report is, I think, distinctly encouraging.

The **marriage-rate** (17.5) was **1.4 above the average** for the previous five years; the **birth-rate** (29.5), however, was **2.0 below the average**, being much the lowest of recent years.

The **total death-rate per 1,000 persons living** in Stockport during 1898 was **20.4**.

The **total death-rate** in 1898 in "England and Wales" was **17.6**, and in "The 33 Great Towns" it was **19.0**.

For the **six years 1893-98** the **average general death-rate** in Stockport was **21.6** as against **25.2** for the **six years 1887-92**.

If the average population of the Borough for the six years 1893-98 be taken as 76,000, **this marked reduction of 3.6 per 1,000 in the yearly death-rate represents a saving of some 1,640 lives**, quite apart from the corresponding diminution in non-fatal sickness, which it is reasonable to assume has occurred.

These facts are in themselves sufficient refutation of recent malicious and absolutely false public statements in regard to your vital statistics, e.g., that your death-rate was double that of the country at large.

Hopeful as are the figures above quoted, the **Borough death-rate is undoubtedly higher than it ought to be**. It is annually inflated to a formidable extent by the **enormous mortality amongst infants**, and though some of the responsible causes, e.g., neglect resulting from the employment of mothers in mills, involve serious economic questions, others due to insanitary surroundings can be more easily dealt with.

Foremost amongst such objectionable conditions are accumulations of **filth in midden privies**, emanations from which can gain access to the milk which is so commonly stored for infants in miserable pantries opening out on to small confined yards.

In this connection, and also in regard to the prevalence of **typhoid** and **diarrhoea**, I have repeatedly accentuated the **dangers of the midden-privy system**. During the year 178 of these structures were demolished and only 3 new ones constructed, and it is a matter for congratulation that when your Omnibus Bill becomes law you will be in a position to deal much more effectually with existing privy pits, and to prohibit the construction of new ones.

Particulars as to a number of cases of **Typhoid believed to have been caused by eating mussels** uncooked and presumably infected, are set out at p.p. 19-20.

Advances in regard to the **bacteriology of Typhoid and Scarlet Fevers** are recorded at p.p. 20 & 22, and **Professor Delepine** has kindly furnished a valuable statement as to the **significance of the examinations** he undertakes for you in cases of **Diphtheria** (vide p.p. 24-25). I have summarized at p. 14 the leading points of the **Vaccination Act, 1898**, and at p. 30 a new and convenient method of **disinfection by Formalin** is explained. *At p. 37 the manufacture of Ice-creams is dealt with.*

Special Reports on "The Common Lodging House Accommodation of the Borough," and on "The Amount of Water Required for Flushing Sanitary Conveniences" appear as Appendices A and C.

I gratefully acknowledge the support and courteous consideration invariably accorded to me by the late chairman and the members of the Sanitary Committee, and I may perhaps be permitted to respectfully testify to the deep and constant interest which the late Mr. Councillor Bell took in the working of your Health Department, and to the warm esteem and respect with which he was regarded by its Staff.

Councillor Hyde Marriott, M.B., Lond., very kindly continued to take my place at the Hospital when necessary, and the duties of the Hospital Staff, Inspectors, and Clerks were very satisfactorily performed.

I am, Mr. Mayor and Gentlemen,

Your obedient servant,

CHARLES PORTER,

*Medical Officer of Health.*

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## COUNTY BOROUGH OF STOCKPORT. 1898.

Estimated Population	....	....	....	....	80,500
Area	....	....	....	....	2,200 acres.
Gross Rateable Value	....	....	....	£284,156	5 0
Gross Value of a Penny Rate	....	....	....	£1,183	19 8
Birth-rate per 1,000	....	....	....	....	29·5
General Death-rate per 1,000	....	....	....	....	20·4
Deaths of Infants under 1 year per 1,000 Births					231
Zymotic Death-rate	....	....	...	....	4·02
Phthisis Death-rate	....	....	....	....	1·80

## Topographical Features of Stockport.

THE BOROUGH is situated on both the Cheshire and Lancashire sides of the valley through which flows the commencement of the river Mersey, formed by the junction within the Borough of the Goyt and Tame.

GEOLOGY. The Coal Measures, Permian Sandstone, Permian Marl, and Pebble Beds form the solid rocks of the District. Overlying them is the Glacial Drift, presenting great variations in thickness and in the relation of the sand, gravel, and clay of which the beds are composed. In certain districts where typhoid is observed to be specially prevalent, the sponge-like sand or gravel rests upon a more or less basin-shaped layer of clay.

## Growth of Stockport.

Year.	Inhabited Houses.	Houses Vacant.	Building.	Population	Mortality	Zymotic Mortality.	Deaths under one year per 1000 births.	Birth Rate.
1841	8814	†1157	...	†50495	...	...	...	...
1851	10568	...	...	†53835	...	...	...	...
1861	11298	..	...	†54682	...	..	...	...
1871	...	...	...	†53001	..	...	...	...
1881	13007	†1558	74	†59544	24.7	...	...	...
1891	15573	†1216	100	†70263	26.9	3.5	223	33.3
1892	..	...	...	71000	22.7	2.07	199	32.6
1893	16269	*870	170	73000	23.9	4.8	222	32.06
1894	16397	*804	150	73600	18.7	1.60	192	31.3
1895	16859	*876	100	75360	24.8	4.40	231	32.5
1896	17190	*890	120	76800	20.6	2.9	189	31.09
1897	17693	*613	197	79600	21.6	4.8	214	30.8
1898	17888	*561	...	80500	20.4	4.02	231	29.5

† Census Return.

\* Not including lock-up shops, factories, and warehouses unoccupied at night, which number 800 to 900.

## Statistics for 1898.

**Area of Municipal, Parliamentary, and County Borough..... 2200 acres.**  
**Total Number of Inhabited Houses ..... 17888**

### NUMBER OF INHABITED HOUSES IN EACH WARD.

No.	Ward.	Occupied Dwellings.	No.	Ward.	Occupied Dwellings.
1	Lancashire Hill.....	1150	8	Hollywood .....	1426
2	Heaton Lane .....	1464	9	Edgeley .....	1429
3	Old Road.....	1529	10	Shaw Heath .....	1205
4	Portwood.....	1530	11	St. Thomas's .....	1385
5	St. Mary's .....	895	12	Hempshaw Lane .....	1106
6	Vernon.....	1295	13	Cale Green .....	1342
7	Spring Bank ... .....	1201	14	Heaviley .....	931

### Estimated Population, 1898.

(1) The "Natural Increase," i.e., the excess of births over deaths from Census Day, 1891, to 30th June, 1898, viz., 4706, indicates a population of ... ... ... ... ... 74,969

The Register General's Estimate for 1898 is ... 79,213

Neither of these calculations allow for immigration and emigration. The Estimate adopted for 1898 assumes that about 4·5 persons occupy each inhabited house, and is taken as ... ... ... ... 80,500

Unfortunately, there are almost insuperable difficulties in satisfactorily estimating town populations in intercensal years under the present conditions of a decennial Census. As we are now again approaching the close of another Census decennium it is most desirable that this statistical difficulty should be fully and carefully considered by all those who have the sanitary progress of the country at heart, in order that measures may be taken when the next Census Act is passed to provide for a more frequent enumeration of town populations at any rate, and for more trustworthy estimates of population in intercensal years.

### Marriages.

The number of marriages during 1898 was 706.

Year.	Number of Marriages.	Rate per 1000 living.	Rate for England.
1893	486	13·2	14·7
1894	615	16·7	15·1
1895	680	18·04	15·0
1896	585	15·2	15·8
1897	689	17·3	16·0
1898	706	17·5	

TYPE OF DATA DURING THE MONTH OF MAY 1904

Number of houses in which the following types of data were obtained:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	8010	8011	8012	8013	8014	8015	8016	8017	8018	8019	8020	8021	8022	8023	8024	8025	8026	8027	8028	8029	8030	8031	8032	8033	8034	8035	8036	8037	8038	8039	8040	8041	8042	8043	8044	8045	8046	8047	8048	8049	8050	8051	8052	8053	8054	8055	8056	8057	8058	8059	8060	8061	8062	8063	8064	8065	8066	8067	8068	8069	8070	8071	8072	8073	8074	8075	8076	8077	8078	8079	8080	8081	8082	8083	8084	8085	8086	8087	8088	8089	8090	8091	8092	8093	8094	8095	8096	8097	8098	8099	80100	80101	80102	80103	80104	80105	80106	80107	80108	80109	80110	80111	80112	80113	80114	80115	80116	80117	80118	80119	80120	80121	80122	80123	80124	80125	80126	80127	80128	80129	80130	80131	80132	80133	80134	80135	80136	80137	80138	80139	80140	80141	80142	80143	80144	80145	80146	80147	80148	80149	80150	80151	80152	80153	80154	80155	80156	80157	80158	80159	80160	80161	80162	80163	80164	80165	80166	80167	80168	80169	80170	80171	80172	80173	80174	80175	80176	80177	80178	80179	80180	80181	80182	80183	80184	80185	80186	80187	80188	80189	80190	80191	80192	80193	80194	80195	80196	80197	80198	80199	80200	80201	80202	80203	80204	80205	80206	80207	80208	80209	80210	80211	80212	80213	80214	80215	80216	80217	80218	80219	80220	80221	80222	80223	80224	80225	80226	80227	80228	80229	80230	80231	80232	80233	80234	80235	80236	80237	80238	80239	80240	80241	80242	80243	80244	80245	80246	80247	80248	80249	80250	80251	80252	80253	80254	80255	80256	80257	80258	80259	80260	80261	80262	80263	80264	80265	80266	80267	80268	80269	80270	80271	80272	80273	80274	80275	80276	80277	80278	80

TABLE A.

TABLE OF DEATHS DURING THE YEAR 1898, IN THE URBAN SANITARY DISTRICT OF STOCKPORT, CLASSIFIED ACCORDING TO DISEASES, AGE, AND LOCALITIES.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate Localities.	Mortality from all causes at subjoined ages.										Mortality from subjoined Causes, distinguishing Deaths of Children under Five Years of Age.																				Smallpox.		Scarlatina.		Diphtheria.		Membranous.		Typhus.		Enteric or Typhoid.		Continued.		Relapsing.		Puerperal.		Cholera.		Erysipelas.		Measles.		Whooping Cough.		Influenza.		Diarrhoea and Dysentery.		Rheumatic Fever.		Auge.		Phthisis.		Bronchitis, Pneumonia, and Pleurisy.		Heart Disease.		Injuries.		All other Diseases.		TOTALS.	
	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	TOTALS.																																								
	(a)																																																																											
LANCASHIRE HILL WARD	99	28	10	3	6	17	18	17	{ Under 5 5 upw'lds	...	...	1	...	...	...	...	...	...	...	...	2	1	...	8	...	...	...	5	...	...	21	38																																												
HEATON LANE WARD	155	56	27	5	5	19	27	16	{ Under 5 5 upw'lds	...	...	...	...	...	1	...	...	1	...	...	9	...	...	17	...	...	13	7	7	3	25	61																																												
OLD ROAD WARD	119	48	8	4	3	11	24	21	{ Under 5 5 upw'lds	...	...	...	...	...	...	...	...	...	...	2	3	...	14	...	...	5	10	...	1	21	56																																													
FORTWOOD WARD	168	69	27	7	4	14	37	10	{ Under 5 5 upw'lds	...	1	1	...	...	...	...	...	...	...	4	...	...	25	...	...	2	25	...	38	96																																														
ST. MARY'S WARD	86	30	11	3	3	12	19	8	{ Under 5 5 upw'lds	...	...	...	...	...	...	...	...	...	...	4	1	...	14	...	...	2	7	...	1	12	41																																													
VERNON WARD	104	46	20	1	3	7	12	15	{ Under 5 5 upw'lds	...	...	...	...	...	...	...	...	...	...	6	4	1	17	...	...	1	16	...	1	20	66																																													
SPRING BANK WARD	96	34	15	3	5	14	14	11	{ Under 5 5 upw'lds	...	...	...	...	...	...	...	...	...	...	5	1	...	12	...	...	1	12	...	1	17	49																																													
HOLLYWOOD WARD	114	41	27	4	6	11	16	9	{ Under 5 5 upw'lds	...	1	1	...	...	...	...	...	...	...	5	...	...	17	...	...	3	13	...	1	27	68																																													
EDGELEY WARD	93	34	6	3	2	14	17	17	{ Under 5 5 upw'lds	...	2	...	...	...	...	...	...	...	...	2	...	...	12	...	...	1	7	10	10	1	22	53																																												
SHAW HEATH WARD	99	32	13	4	4	14	19	13	{ Under 5 5 upw'lds	...	1	...	...	...	...	...	...	...	...	6	...	1	11	...	...	1	2	...	12	9	3	2	24	54																																										
ST. THOMAS' WARD	118	50	17	2	3	9	22	15	{ Under 5 5 upw'lds	...	...	...	...	...	...	...	...	...	...	3	3	...	21	...	...	7	11	7	1	21	51																																													
HEMPSHAW LANE WARD	80	30	14	1	1	4	22	8	{ Under 5 5 upw'lds	...	...	...	...	...	...	1	...	...	...	1	3	1	19	...	...	1	7	...	12	44																																														
CALE GREEN WARD	74	17	9	1	5	4	17	21	{ Under 5 5 upw'lds	...	4	...	...	...	...	1	...	...	...	...	1	...	3	...	...	7	11	7	1	21	51																																													
HEAVILEY WARD	68	24	14	2	2	9	7	10	{ Under 5 5 upw'lds	...	...	...	...	...	...	...	...	...	...	2	1	...	11	...	...	1	8	1	1	13	38																																													
INFIRMARY	24	...	4	2	1	7	5	5	{ Under 5 5 upw'lds	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...																																			
UNION WORKHOUSE	189	13	1	1	6	36	71	61	{ Under 5 5 upw'lds	...	...	...	...	...	...	1	...	...	...	...	1	...	...	2	...	...	1	1	...	31	35	34	1	67	175																																									
ISOLATION HOSPITAL	10	...	...	1	5	2	2	...	{ Under 5 5 upw'lds	...	1	...	...	...	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...																																		
BOYS INDUSTRIAL SCHOOL	2	...	...	2	...	...	...	...	{ Under 5 5 upw'lds	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...																																	
BISHOP BROWN MEMORIAL SCHOOL	1	...	...	...	...	...	...	1	{ Under 5 5 upw'lds	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...																																	
TOTALS	1699	552	223	49	64	204	350	257	{ Under 5 5 upw'lds	...	9	2	1	...	...	...	...	...	...	52	18	3	203	...	...	18	144	2	11	312	775																																													

THE SUBJOINED NUMBERS HAVE ALSO TO BE TAKEN INTO ACCOUNT IN JUDGING OF THE ABOVE RECORDS OF MORTALITY.

Deaths occurring outside the District among persons belonging thereto	...	Under 5	5 upw'lds	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...


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## Births.

The births registered numbered 2,381. The birth-rate was 29.5 per 1,000, being below the average for ten previous years, and the lowest hitherto recorded.

There were 95 illegitimate births registered, or 3.9 per cent. of total, against an average of 4.8 in the four previous years.

## Deaths.

The deaths registered numbered 1,699, or 81 less than in 1897. Excluding 52 deaths (chiefly in the Workhouse and Infirmary) of persons not usually resident within the Borough; **the death-rate from all causes was 20.4**, as against 21.6 in 1896, and 23.4 for the ten years 1888-1897, and is lower than any previous rate recorded except that of 1894.

The following table summarises for comparison the more prominent mortal statistics for 1893-8.

CAUSE OF DEATH.	Number of Deaths.					
	1898	1897	1896	1895	1894	1893
Seven Chief Zymotics.....	327	386	231	336	132	366
Smallpox .....	...	...	...	...	2	2
Scarlet Fever .....	11	19	19	6	6	11
Diphtheria .....	3	44	14	27	16	32
"Fevers"—						
Typhoid and Continued	21	20	22	20	8	49
Measles .....	55	73	17	84	1	37
Whooping Cough .....	18	38	34	32	3	33
Diarrhoea .....	219	232	125	167	96	202
Influenza .....	10	19	9	16	8	3
Lung Diseases (including						
Phthisis).....	492	522	542	629	457	526
Heart Disease .....	123	123	126	140	112	112
Injury.....	49	46	28	32	33	49

In 1898, as compared with 1897, there was a marked decrease in the number of deaths from lung diseases, scarlet fever, measles, whooping cough, and influenza. The mortality from diphtheria was also very low. As in previous years, the most prominent factors of the death-rate are, in the order of their respective importance :

- (1) Lung diseases, including consumption.
- (2) Diarrhoeal diseases of young children.
- (3) Infantile wasting, or food marasmus.
- (4) Heart disease.

The deaths which occurred within the district of persons not belonging thereto, may be thus tabulated :—

Where from.	DIED.			Where from.	DIED.		
	Work-house.	In-firmary.	Else-where.		Work-house.	In-firmary.	Else-where.
Hyde .....	12	...	...	Macclesfield ...	1	...	...
Reddish .....	8	1	1	Handforth .....	1	1	...
Oldham .....	2	...	...	Marple .....	1	...	...
Etchells .....	2	...	...	Romiley .....	1	...	...
Bramall .....	2	...	...	Compstall .....	1	...	...
Heaton Mersey	2	...	...	Hazel Grove ...	1	...	...
Manchester ...	2	1	...	Cheadle .....	...	3	...
Salford .....	1	...	...	Denton .....	...	1	...
Ardwick .....	1	...	...	Didsbury .....	...	1	...
Bolton .....	1	...	...	Cheadle Hulme	...	1	...
Hurst .....	1	...	...	Sheffield .....	...	1	...
Torkington ...	1	...	...				

Totals :—In Workhouse, 41 ; in Infirmary, 10 ; elsewhere, 1.

The deaths in the public hospitals of persons belonging to Stockport exhibit the following Ward distribution :—

Where from.	Died in			Where from.	Died in		
	Work-house.	In-firmary.	Isolation Hospital.		Work-house.	In-firmary.	Isolation Hospital.
Lancashire Hill	4	1	...	Hollywood .....	8	...	...
Heaton Lane ..	15	2	1	Edgeley .....	4	...	...
Old Road .....	5	2	1	Shaw Heath ...	16	...	2
Portwood .....	19	2	2	St. Thomas' ...	23	2	1
St. Mary's .....	19	1	...	Hempshaw Lane	2	...	1
Vernon .....	4	...	...	Cale Green .....	3	1	..
Spring Bank...	21	3	1	Heaviley .....	5	...	..

Totals :—In Workhouse, 148 ; in Infirmary 14 ; in Isolation Hospital, 9.

## SUMMARY OF THE NATIVE AND FOREIGN TRADE OF THE STATE OF KERALA

SUMMARY OF THE VITAL AND MORTAL STATISTICS OF THE BOROUGH AND EACH OF ITS  
WARDS FOR THE YEAR 1898.

WARD.	Acre-age.	Estimated population.	Persons per acre.	No. of Births registered.	Birth-rate.	Correct'd de'ths*	Death rate.	No. of de'ths under 1 year of age*	Inf'nt mortality rate per 1000 births	No. of 7 principal Zymotic diseases*†	Zymotic death rate per 1000.	No. of de'ths from Diarrhoea*	Death rate from Diarrhoea per 1000.	No. of de'ths from Consumption*	Death rate from Consumption per 1000.	No. of de'ths from Other Lung Diseases.	Death rate from Other Lung Diseases per 1000.	
LANCASHIRE HILL ...	145	5,175	35.7	162	31.8	104	20.09	28	173	14	2.7	0.9	9	1.7	14	2.7	13	2.5
HEATON LANE ... .	223	6,588	29.5	180	27.3	173	26.2	56	311	30	4.5	1.6	19	2.8	14	2.1	34	5.1
OLD ROAD ... ... .	114	6,880	60.3	195	28.3	128	18.6	49	251	23	3.3	0.8	17	2.4	11	1.6	23	3.3
PORTWOOD ... . .	130	6,885	52.9	205	29.7	191	27.7	69	336	34	4.9	1.1	26	3.7	11	1.6	50	7.2
ST.MARY'S ... ... .	91	4,030	44.3	122	30.2	107	26.5	31	254	24	5.9	1.9	16	3.9	12	2.9	19	4.7
VERNON... ... . .	236	5,827	24.7	158	27.1	107	18.3	46	291	29	4.9	2.05	17	2.9	6	1.02	28	4.8
SPRING BANK ... . .	81	5,404	66.7	188	34.7	120	22.2	36	191	20	3.7	1.2	13	2.4	14	2.5	31	5.7
HOLLYWOOD... ... .	97	6,417	66.1	220	34.2	122	19.01	41	186	26	4.05	1.4	17	2.6	13	2.02	29	4.5
EDGELEY ... ... .	184	6,430	35.0	202	31.4	97	15.08	34	168	18	2.8	0.9	12	1.8	8	1.2	14	2.1
SHAW HEATH ... . .	61	5,422	88.9	177	32.6	117	21.5	37	209	24	4.4	2.02	13	2.3	15	2.7	14	2.5
ST. THOMAS' ... ... .	53	6,232	11.6	189	30.3	147	23.5	50	264	29	4.6	1.2	21	3.3	11	1.7	27	4.3
HEMPSHAW LANE ..	146	4,980	34.1	137	27.5	84	16.8	31	226	27	5.4	1.4	20	4.01	6	1.2	18	3.6
CALE GREEN ... . .	5	6,040	41.6	138	22.8	77	12.7	19	137	10	1.6	0.9	4	0.6	2	0.3	15	2.4
HEAVILEY ... ... .	94	4,190	8.48	108	25.7	73	17.4	24	222	16	3.8	0.7	13	3.1	9	2.1	16	3.8
STOCKPORT BOROUGH	2200	80,500	33.6	2381	29.5	1647	20.4	551	231	324	4.02	1.3	217	2.6	146	1.8	331	4.1

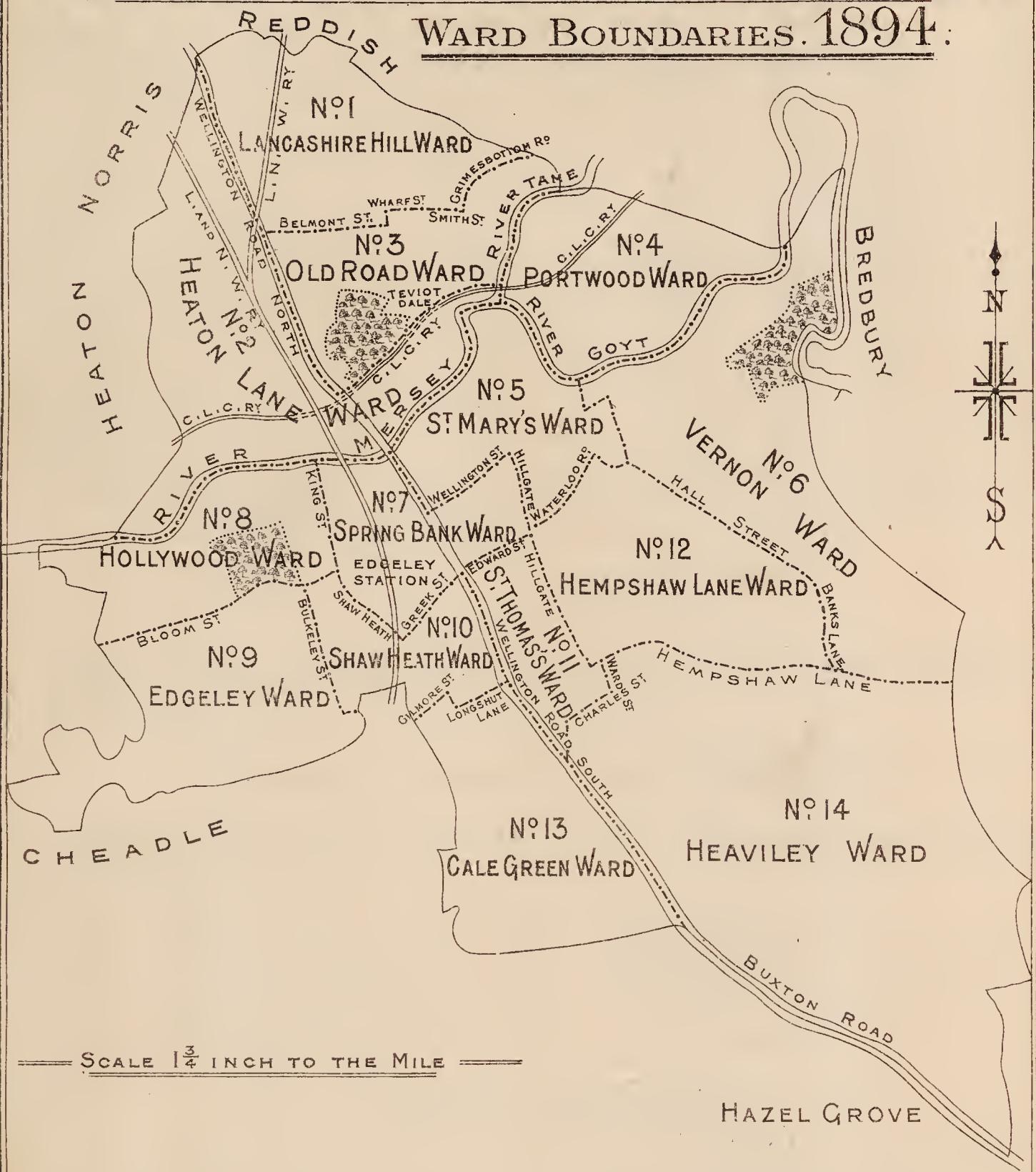
\* Deaths of Stockport residents in the Union Workhouse, Infirmary, and Isolation Hospital are here referred to the *non-resident*.

Deaths within the Borough of Non-residents from out townships are excluded. (See following table.)

† The "seven principal Zymotic diseases" are smallpox, measles, scarlet fever, diphtheria and membranous croup, whooping cough, fever (typhus, typhoid, and continued), and diarrhoea.

# COUNTY BOROUGH of STOCKPORT.

WARD BOUNDARIES. 1894.



JOHN ATKINSON, A.M.I.N.S.T.C.E.  
BOROUGH SURVEYOR.



## Statistical Comparison with other Districts. \*

	Estimated Population.	Persons to an acre.	Birth-Rate.	Death-Rate.	Zymotic Death-Rate.	Deaths of Infants under 1 year to 1000 b'ths
England and Wales .....	31,397,078	...	29.4	17.6	2.22	161
The 33 Great Towns.....	11,218,378	35.3	30.3	19.0	2.85	178
The 67 other Large Towns .....	3,911,807	13.4	29.4	17.2	2.41	173
St. Helens .....	85,119	11.7	37.8	19.0	3.28	179
Wigan .....	60,553	27.7	35.0	19.1	2.54	173
Warrington .....	64,918	20.7	36.3	17.6	2.34	169
Bury .....	59,092	9.8	24.9	18.2	2.10	187
Ashton-under-Lyne .....	43,141	32.2	27.6	20.1	2.57	194
Rochdale.....	73,297	17.5	25.8	18.7	1.24	133
Bolton .....	122,495	52.0	30.9	19.4	2.93	168
Blackburn .....	133,228	19.1	27.1	18.4	2.57	206
Preston .....	116,356	28.5	31.0	19.3	3.07	225
Huddersfield .....	102,454	8.6	22.5	15.9	1.61	153
Halifax .....	96,729	11.3	22.9	17.9	2.15	163
<b>Stockport.....</b>	<b>80,500</b>	<b>36.6</b>	<b>29.5</b>	<b>20.4</b>	<b>4.02</b>	<b>231</b>

\* Vide Registrar General's Return for 4th Quarter of 1898, page ix., also.  
Annual Summary for 1898, p. iii., v., xvi., xix., xx., xxiv.—xxvi.

## Uncertified Deaths.

There were 2 uncertified deaths during the year, of which one occurred in Heaton Lane Ward and one in Old Road Ward.

## Coroners' Inquests and Certificates.

108 inquests were held during the year. The following is a summary of the verdicts returned :—

Suicide .....	12	Exhaustion .....	2
Natural Causes .....	57	Suffocation.....	3
Accidental Death .....	32	Erysipelas .....	1
Manslaughter .....	1		

## Infantile Mortality.

The deaths of infants under 1 year of age were 551, or 32.4 per cent. of all deaths registered, and the rate of infantile mortality was 231.

### DEATHS UNDER ONE YEAR PER THOUSAND BIRTHS.

	1893	1894	1895	1896	1897	1898
England and Wales.....	159	137	161	148	156	161
33 Great Towns .....	181	152	182	167	177	178
67 other Large Towns .....	—	142	176	161	169	173
Stockport .....	225	192	231	189	214	231

The appended tabular analysis of the infant deaths of the last ten years indicates very clearly that the **chief causes** of this large factor of your death rate are, as before pointed out, (a) prematurity and low vitality at birth ; (b) respiratory disease ; (c) diarrhoeal disorders, due to improper feeding and insanitary surroundings. The abatement of the latter condition, the limitation of female factory labour **before** as well as after confinement, and the extension of the Infant Life Protection Act, 1897, to **all** children who are nursed out, are amongst the remedies advocated for this evil. Improvement, however, must be gradual and largely commensurate with the diffusion of knowledge as to infant hygiene.

### Zymotic Diseases.

The features of the year's record were a long death roll from measles and diarrhoea ; a marked prevalence of typhoid fever in January, October, and November, and a notable diminution in the occurrences of scarlet fever notified.

The death-rate from the "Seven Chief Zymotic Diseases" \* was equal to 4.02 per 1,000 persons living (as compared with 3.7 for the five years 1893-7), and of this figure diarrhoea was responsible for 2.6 and measles for 0.6. The same rate for England and Wales was 2.22, for the 33 Great Towns 2.85, and for the 67 Other Large Towns 2.41.

### INFECTIOUS DISEASES NOTIFICATION ACT.

#### CASES REPORTED DURING 1898.

MONTH.	Smallpox	Scarlet Fever	Diphtheria	Membranous Croup.	Typhus Fever	Typhoid Fever	Continued Fever	Puerperal Fever	Cholera	Erysipelas	Totals
January...	...	39	...	1	...	13	...	2	...	1	56
February	...	25	1	...	...	4	...	...	...	6	36
March ...	...	30	1	1	...	7	...	...	...	4	43
April .....	...	6	1	...	...	6	1	...	...	5	19
May .....	...	25	1	...	...	2	...	...	...	2	30
June .....	...	13	2	...	...	3	...	...	...	2	20
July .....	...	23	...	...	...	7	...	...	...	4	34
August ...	...	6	...	...	...	6	...	...	...	6	18
September	...	11	1	...	...	6	...	1	...	1	20
October ...	...	5	1	...	...	38	...	1	...	8	53
November	...	6	3	...	...	20	...	1	...	4	34
December	...	8	1	1	...	10	...	...	...	3	23
<b>Totals ...</b>	<b>...</b>	<b>197</b>	<b>12</b>	<b>3</b>	<b>...</b>	<b>122</b>	<b>1</b>	<b>5</b>	<b>...</b>	<b>46</b>	<b>386</b>

15

123

Total 386

\* Smallpox, measles, scarlet fever, diphtheria and membranous croup, whooping cough "fever" typhus, typhoid, and continued), and diarrhoea.

# Analysis of the Causes of Infant Mortality in Stockport.

FOR THE 10 YEARS—1889 TO 1898 INCLUSIVE.

CAUSES.	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	1st week.	2nd week.	3rd week.	4th week.	Under 1 month.	1 month, and under 2 months.	2 months, and under 3 months.	3 months, and under 4 months.	4 months, and under 5 months.	5 months, and under 6 months.	6 months, and under 7 months.	7 months, and under 8 months.	8 months, and under 9 months.	9 months and under 10 months.	10 months and under 11 months.	11 months, and under 12 months.	TOTAL.
	125	30	26	14	13	3	5	216	40	30	14	300	19	12	3	5	4	5	5	1	1	...	2	357
Premature birth and congenital malformation ... ... ...																								
Debility, low vitality, inanition, asthenia, marasmus, atrophy.	105	42	32	18	12	10	11	230	70	94	34	428	171	186	108	77	58	32	32	24	20	16	12	1114
Respiratory diseases (including pulmonary tuberculosis) ...	8	1	2	...	2	...	1	14	16	13	7	50	97	108	116	105	104	89	97	87	82	103	73	1111
Diarrhoea and other gastro-intestinal maladies ... ...	...	...	...	...	...	3	2	5	10	23	18	56	101	130	144	139	131	90	78	67	58	30	33	1057
Tabes Mesenterica and tubercular peritonitis ... ... ...	...	...	...	...	...	...	...	...	...	...	...	4	3	7	10	9	13	5	6	6	5	1	1	69
Dentition ... ... ... ...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	7	20	20	26	24	19	20	24	24	162
Convulsions and nervous diseases	22	19	15	15	8	6	5	90	25	28	7	150	64	57	51	40	36	20	15	15	16	20	11	495
Meningitis (including Tubercular)	...	...	...	...	...	...	...	...	...	...	...	4	12	12	21	19	17	22	12	13	7	10	10	149
Zymotic diseases—																								
w.—Whooping cough.																								
D.—Diphtheria.																								
c.—Membranous croup.																								
Sc.—Scarlet fever.																								
M.—Measles.																								
E.—Erysipelas.																								
Suffocation = s. Injury = I. Overlain = o.	1.I 1.s	1.I ...	1.s ...	1.s ...	2.s 2.I	1.s 1.I	...	1.s 3.I	4.s 3.0	5.s 1.0	4.s 1.0	2.s 1.0	2.s 1.0	1.s 1.0	1.s ...	1.I ...	1.s ...	1.s ...	1.s ...	1.s ...	1.s ...	21.s 6.I 6.o	33	
Other causes*	9	4	...	3	..	4	3	23	18	8	8	57	30	18	17	11	13	8	8	7	8	6	4	187
<b>TOTALS ...</b>	<b>271</b>	<b>97</b>	<b>75</b>	<b>51</b>	<b>35</b>	<b>26</b>	<b>27</b>	<b>582</b>	<b>182</b>	<b>198</b>	<b>91</b>	<b>1053</b>	<b>506</b>	<b>492</b>	<b>472</b>	<b>433</b>	<b>417</b>	<b>321</b>	<b>308</b>	<b>279</b>	<b>263</b>	<b>253</b>	<b>220</b>	<b>5017</b>

TOTAL NUMBER OF BIRTHS DURING YEARS 1889 TO 1898 INCLUSIVE, 23,457.

\* DEATHS FROM "OTHER CAUSES" included *inter alia*—Acute eczema, 9 days; 29 inherited syphilis, 19 during first three months; 16 icterus, 13 being in first month; 11 atelectasis; 1 intestinal obstruction, 10th day; 5 intussusception, 1 in 5th, 1 in 6th, and 3 in 7th month; 1 volvulus, 5th month; 3 strangulated hernia, 2 in 2nd month, and 1 in 10th month; 1 prolapsus recti, 10th month; 2 congenital occlusion rectum, 2nd and 3rd week; 1 tubercular diabetes, 11th month; 4 tubercular peritonitis, 5th, 9th, and 11th months; 3 endocarditis, 1st month (verified P.M.) 4th and 8th months; 4 haemorrhage umbilical cord, 1st, 2nd, 3rd, and 5th day; 3 inflammation umbilicus, 1st month; 1 gastro-intestinal haemorrhage, 6th day; 1 lympho-sacroma (verified P.M.), 4th month; 1 purpura haemorrhagica, 3rd month; 1 suffocated by caul; 1 gangrenous stomatitis, 9th month; 1 influenza, 10th month.



TABLE B.

TABLE B.  
Table of Population, Births, and of New Cases of Infectious Sickness, coming to the knowledge of the Medical Officer of Health during the year 1898,  
In the Urban Sanitary District of Stockport, classified according to Diseases, Ages, and Localities.

NAMES OF LOCALITIES adopted for the purpose of these Statistics: Public Institutions being shown as Separate Localities.	POPULATION AT ALL AGES.		New Cases of Sickness in each Locality coming to the knowledge of the Medical Officer of Health.												Number of such cases removed from the several Localities for Treatment in ISOLATION HOSPITAL. WORKHOUSE HOSP.										
	Census 1891.		Estimated to Middle of 1898.		Registered Births.		Aged under 5 or over 5.		FEVERS.						TOTAL.		FEVERS.		FEVERS.						
	(a)	(b)	(c)	(d)	(e)	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8				
Lancashire Hill Ward...					Males Fem's	68 94	{ under 5 5 upw'ds	3	1	...	...	...	...	...	4	17	...	1	...	...	...	...	...	1	3
Heaton Lane Ward .....						97 83		5	...	..	5	...	2	1	13	26	...	2	...	...	...	...	...	2	2
Old Road Ward .....						109 86	{ under 5 5 upw'ds	2	...	..	2	...	...	...	4	22	...	1	...	1	...	...	...	1	6
Portwood Ward.....						101 104		7	2	1	6	...	1	5	22	21	...	1	...	4	...	...	...	5	5
St. Mary's Ward .....						59 63	{ under 5 5 upw'ds	1	...	1	...	...	...	...	2	19	...	3	...	2	...	...	...	...	5
Vernon Ward.....						64 94		9	1	...	6	...	3	19	33	43	...	1	...	3	...	...	...	1	16
Spring Bank Ward.....						100 88	{ under 5 5 upw'ds	22	1	...	7	...	3	3	33	...	12	...	3	...	...	...	...	15	15
Hollywood Ward .....						110 110		1	...	..	...	...	1	2	11	13	...	1	...	2	...	...	...	6	6
Edgeley Ward .....						101 101	{ under 5 5 upw'ds	6	...	..	4	...	1	1	11	...	4	...	2	...	...	...	...	2	19
Shaw Heath Ward .....						92 85		5	1	...	1	...	...	7	37	44	...	2	...	...	...	...	...	17	17
St. Thomas' Ward .....						86 103	{ under 5 5 upw'ds	9	...	..	12	...	5	26	35	...	5	...	4	...	...	...	...	9	9
Hempshaw Lane Ward						62 75		8	1	...	10	...	7	37	42	...	5	...	6	...	...	...	...	1	12
Cale Green Ward.....						63 75	{ under 5 5 upwards	11	...	..	19	...	8	38	38	...	5	...	6	...	...	...	...	11	11
Heaviley Ward .....						46 62		12	1	...	4	...	1	15	15	28	...	4	...	2	...	...	...	...	2
Union Workhouse .....						1158 1223	{ under 5 5 upwards	3	...	..	8	...	1	...	3	18	...	1	...	2	...	...	...	...	1
								6	2	...	1	...	4	13	13	386	...	10	...	2	...	1	1	4	13
								136	7	1	116	1	5	44	310	386	...	64	...	49	...	1	1	4	119

Table 10.10 shows the relationship between the number of hours worked and the number of hours of leisure.

To systematize your Inspectors' work, they are supplied with note books, having printed headings in regard to the points on which inquiry is desirable. Their results are afterwards transcribed on suitable printed schedules which are filed and bound in book form at the end of each year.

### Smallpox.

There is, fortunately, nothing to record under this head.

### Vaccination.

The following are the completed returns relating to primary vaccination of infants during the decennium 1888-1897 in the three registration districts of Stockport, which include, in addition to the Borough, portions of Reddish and of Heaton Norris and Brinnington outside the Borough.

Year ending 31st December	No. of Births registered	Successfully Vaccinated.	Insu'cep-tible of Vaccina-tion.	Had Smallp'x	Dead Unvaccinated.	Postpon-ement by Medical Certi-ficate.	Removal to dis-tricts the Vaccina-tion Officer of which has been duly apprised.	Removal to places unknown or which cannot be reach-ed and cases not having been f'nd	Un-account-ed for.
1888	2520	1939	7	...	359	23	27	115	50
1889	2644	2127	12	...	318	31	21	107	28
1890	2551	1917	9	...	392	35	22	125	51
1891	2700	2035	5	...	377	46	26	142	69
1892	2644	1935	3	...	362	81	26	169	68
1893	2682	1901	14	..	397	33	33	144	160
1894	2690	1890	15	...	403	64	25	166	127
1895	2858	1843	13	...	449	46	12	237	258
1896	2747	1927	24	...	446	60	14	187	89
1897	2861	2029	9	...	446	32	22	151	133
Totals.	26897	19543	111	...	3949	451	228	1543	1033

Certificates of conscientious objection have been received in respect of 39 children.

I am indebted to the courtesy of C. F. Johnson, Esq., Solicitor, Clerk to the Guardians for these figures.

## Vaccination Act, 1898.

In order to understand the effect of the Vaccination Act of 1898 it may be well to recall the fact that the Vaccination Act of 1867, Section 16, required the custodian of a child to procure vaccination of that child within three months of its birth ; Section 29 imposed a penalty on the custodian of the child for neglect to procure such vaccination, while Section 31 empowered a Justice to make an Order for the vaccination of any unvaccinated child under 14 years of age, and to impose a penalty for disobedience of such order.

**The Vaccination Act of 1898** amended the law as follows :—

(1) The period within which the custodian of a child shall cause it to be vaccinated shall be **6 months** from the birth of the child.

(2) The custodian is no longer required to take a child to the Public Vaccinator, but the latter shall, if the custodian so requires, visit and vaccinate the child at its home.

(3) If a child is not vaccinated within four months after its birth, the public vaccinator, after at least twenty-four hours' notice to the parent, shall visit the home of the child, and shall offer to vaccinate the child with glycerinated calf lymph, or such other lymph as may be issued by the Local Government Board.

(4) The Public Vaccinator shall not vaccinate a child, if, in his opinion, the condition of the house in which it resides is such, or there is or has been such recent prevalence of infectious disease in the district, that it cannot safely be vaccinated, and in that case shall give a certificate of postponement of vaccination, and shall forthwith give notice of any such certificate to the medical officer of health for the district.

(5) No parent or other person shall be liable to any penalty for failure to have a child vaccinated if within four months he satisfies two justices, or a stipendiary, that he conscientiously believes that vaccination will be prejudicial to the health of the child, and if within seven days thereafter he delivers to the vaccination officer of the district the magistrates' certificate of such conscientious objection.

(6) An order under Section 31 of the Vaccination Act of 1867, directing that a child be vaccinated, shall not be made on any person who has previously been convicted of non-compliance with a similar order relating to the same child.

(7) No proceedings under Section 31 of the Vaccination Act of 1867 shall be taken against any parent or person who has been convicted under Section 29 of the said Act on account of the same child, until it has reached the age of four years.

(8) Persons committed to prison under the Vaccination Acts shall be treated as first class misdemeanants.

(9) The Local Government Board may by order, if in their opinion it is expedient by reason of serious risk of outbreak of smallpox or of other exceptional circumstances, require the guardians of any poor law union to provide vaccination stations for the vaccination of children with glycerinated calf lymph or such other lymph as may be issued by the Local Government Board, and modify correspondingly the provisions of this Act requiring the Public Vaccinator to visit the home of the child otherwise than on request of the parent.

(10.) The clerk of any sanitary authority which shall maintain a hospital for the treatment of smallpox patients shall keep a list of the names, addresses, ages, and condition as to vaccination of all smallpox patients treated in the hospital, such entries to be made on admission, and shall allow searches to be made therein, and upon demand give a copy of every entry in the same on payment of a fee of sixpence for each search, and threepence for each copy.

### Measles.

55 deaths were recorded from measles, as against 73 in 1897. This represents a rate of 0.68 per 1,000 persons living, as compared with 0.56 in the 33 Great Towns and 0.41 in the 67 Other Large Towns.

The age incidence of these deaths was as follows :—

Under 1 year.	1-2.	2-3.	3-4.	4-5.	Over 5.
7	24	10	9	2	3

*Table Showing the Ward-incidence of Measles in 1898.*

WARD.	Jan.	Feb.	Mar.	Apr.	May.	June	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Total.
	1	2	3	4	5	6	7	8	9	10	11	12	
1 Lancashire Hill .....	1	...	...	...	...	...	1	...	...	...	...	...	2
2 Heaton Lane .....	2	4	2	1	...	...	...	...	...	...	...	...	9
3 Old Road.....	1	1	...	...	...	...	...	...	...	...	...	...	2
4 Portwood .....	1	1	2	...	...	...	...	...	...	...	...	...	4
5 St. Mary's .....	4	...	1	...	1	1	...	...	...	...	...	...	7
6 Vernon .....	2	...	1	1	1	...	...	...	...	1	...	...	6
7 Spring Bank.....	3	1	1	...	...	...	...	...	...	...	...	...	5
8 Hollywood .....	...	...	3	1	...	...	...	...	...	1	...	...	5
9 Edgeley.....	...	...	...	1	...	...	...	...	...	...	1	...	2
10 Shaw Heath .....	3	...	2	...	...	...	1	...	...	...	...	...	6
11 St. Thomas' .....	1	1	...	...	...	...	...	...	...	1	...	...	3
12. Hempshaw Lane .....	1	...	1	...	...	...	...	...	...	...	...	...	2
13 Cale Green .....	...	...	...	...	...	...	...	...	...	...	...	...	...
14 Heaviley .....	...	...	1	...	...	...	...	...	...	1	...	2	...
<b>TOTALS .....</b>	<b>14</b>	<b>6</b>	<b>12</b>	<b>10</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>55</b>	

St. Matthew's School was closed from the 4th to the 24th April, 1898, on account of the prevalence of measles amongst the pupils.

During the year some 15,000 copies of your cautionary handbill were circulated throughout the Borough, and each school received a supply for distribution amongst its scholars.

#### NOTIFICATION OF MEASLES BY SCHOOL TEACHERS.

I am indebted to the care and courtesy of the headmasters of the following schools for the number of notifications indicated :—

St. Thomas' Day School ...	35	Hope Memorial.....	.....	.....	.....	.....	.....	3
St. Peter's .....	5	Cale Green .....	.....	.....	.....	.....	.....	2
Chestergate British .....	5	St. Matthew's .....	.....	.....	.....	.....	.....	1
St. Paul's.....	4	Christ Church ...	.....	.....	.....	.....	.....	1

#### Enteric or Typhoid and Continued Fever.

122 cases of typhoid and 1 of continued fever were reported, as compared with an annual average of 98 cases of typhoid and continued fever during the previous 7 years. Twenty-one deaths resulted, representing an annual death-rate per 1,000 persons living of 0·26, as compared with 0·20 (from "fevers") for the 33 Great Towns, and 0·21 for the 67 Other Large Towns During the decennium 1888-1897, the average annual rate for your Borough was 0·28.

The chief causes of this disease in Stockport have been very fully discussed in former reports. Briefly summarised they include :—

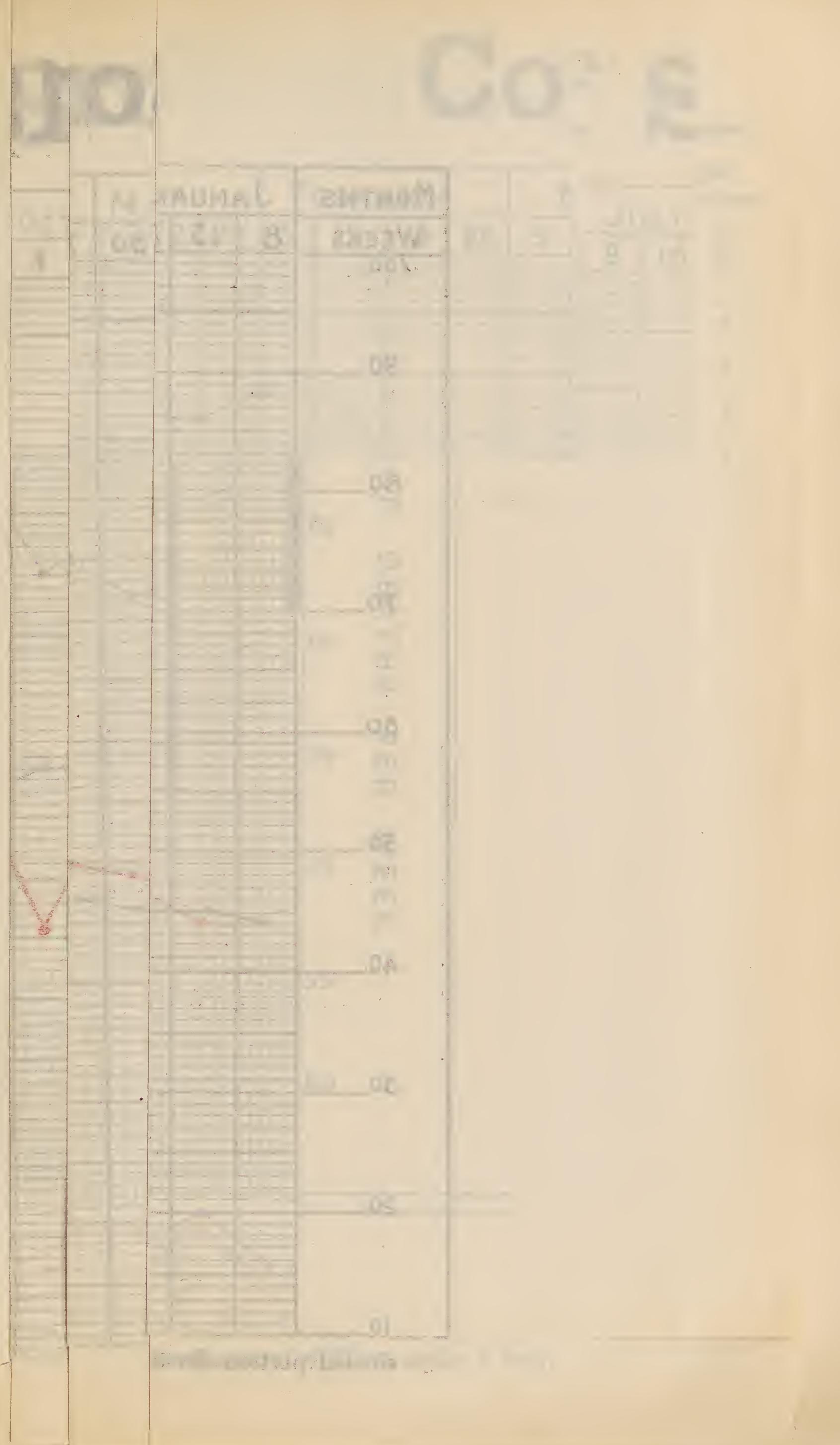
- (1) Soil and ground air pollution by soakage of liquid filth from the many enormous foul privy pits which exist.
- (2) Soil and ground-air pollution by leakage of sewage from defective drains.
- (3) Infected dust and emanations from privy pits into which typhoid discharges have been thrown.

The evils of soil pollution are greatly accentuated by hot dry weather, and in the honest discharge of my duty I must again record the opinion that the persistence of the midden-privy system in your town is a serious and constant source of injury and danger to health, especially in hot weather.

#### SUMMARY OF TYPHOID CASES AND DEATHS IN STOCKPORT FOR 9 YEARS, 1890-98.

	1890	1891	1892	1893	1894	1895	1896	1897	1898
Cases .....	65	77	62	256	59	74	91	70	122
Deaths.....	16	17	17	49	8	20	22	20	21
Death rate per 1000 population	0·23	0·24	0·23	0·67	0·10	0·26	0·28	0·25	0·26

(See also p. 29 of Annual Report, 1894.)



# County Borough of Stockport, 1898.



**Black Columns.**—Total of deaths from all causes. The shaded portion denotes deaths of children under 1 year.

**Red Columns.=Deaths from Respiratory Diseases.**

**Blue Columns.**—Deaths from Zymotic Diseases  
(excluding diarrhoea).

**Yellow Columns.=Deaths from Diarrhoea.**

## TYPHOID AND CONTINUED FEVER REPORTED DURING THE YEAR 1898

WARD	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Lancashire Hill.....	1	1	1	...	1	1	...	...	...	...	...	...	5
Heaton Lane .....	...	...	...	...	1	...	...	3	2	2	...	...	8
Old Road .....	1	...	1	...	1	...	...	1	2	...	...	...	6
Portwood .....	2	...	1	...	1	...	...	3	...	...	...	...	7
St. Mary's .....	...	1	1	...	...	1	...	...	...	...	...	...	3
Vernon .....	1	1	2	...	...	...	...	2	...	...	...	...	6
Spring Bank .....	...	...	...	...	1	...	...	2	2	...	...	...	5
Hollywood .....	1	...	2	1	...	1	...	2	4	1	...	...	12
Edgeley .....	...	...	...	...	2	3	...	4	1	2	...	...	12
Shaw Heath .....	...	...	2	...	1	...	2	5	5	5	...	...	15
St. Thomas' .....	...	...	...	1	1	...	...	7	2	1	...	...	12
Hempshaw Lane.....	7	...	1	...	...	...	...	4	3	5	...	...	20
Cale Green .....	...	1	...	1	...	...	1	...	1	...	...	...	4
Heaviley .....	2	...	...	...	...	...	1	3	2	...	...	...	8
<b>TOTALS.....</b>	<b>13</b>	<b>4</b>	<b>7</b>	<b>7</b>	<b>2</b>	<b>3</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>39</b>	<b>20</b>	<b>10</b>	<b>123</b>

As will be seen from the above table, there were a considerable number of typhoid fever cases in January and during each of the following 8 months. In the last week in August and throughout the whole of September (the first three weeks of which were the hottest of the year) the 4ft. earth temperature reached and remained at its highest point, viz., 59° F., and 3 weeks of October elapsed before it fell to 56° F. In accordance with our invariable experience in Stockport during the previous 5 years, this sustained high temperature of the earth was followed by a marked incidence of typhoid fever, and no less than 59 cases were reported in October and November. I inquired personally into each of these cases with regard to water, milk, food, and general sanitary circumstances. No suspicion was found to attach to the water or milk, but a group of 18 cases, to be presently referred to, was associated with the ingestion of raw mussels. Of the remaining 105 cases, 89 occurred in houses served by midden privies, and 16 in

water closet dwellings. In the majority of cases these midden privies were in a very foul condition, and in one instance a sufferer told me that he and his family had during the hot weather preceding his illness frequently noticed large numbers of flies coming from the privy pit into his house and settling on the food. Last year's experience has only deepened my profound conviction of the influence for evil, especially in regard to typhoid and diarrhoea, of these disgusting structures, and for every one interested in the sanitary welfare of the Borough, it is a matter for sincere congratulation that the Corporation are now successfully seeking powers from Parliament, to facilitate the conversion on a large scale of these privy-pits to water-closets.

**In 81 instances during the six years, 1893-8, infection of a privy-pit with typhoid discharges was followed by one or more cases amongst those who subsequently used the privies.** The entire number of such subsequent cases was 128 out of a total of 668 notified, or 19.1 per cent., and as many as 4, 5, 7, and 8 cases were upon occasion traced to the same privy pit. The details are as follows:—

In 59 houses 1 subsequent case occurred, viz. :—

In 43 cases within a few weeks.
" 10   " about 1 year later.
" 3   "   " 2 years   "
" 1   "   " 3   "   "
" 2   "   " 4   "   "

In 13 houses 2 subsequent cases occurred, viz. :—

In 10 cases within a few weeks.
" 1   " about 1 year later.
" 2   "   " 2   "   "

In 2 houses 3 subsequent cases occurred, viz. :—

In 1 case within a few weeks.
" 1   " about a year later.

In 2 houses 4 subsequent cases occurred, viz. :—

1 within a few weeks and 1 about 3 years later.

In three houses 5 subsequent cases occurred, of which

2 were within a few weeks, the other 4 years later.

In 1 house 7 subsequent cases occurred within a few weeks.

In 1   ,   8       ,       ,       ,       ,       ,       ,

During the same period, only one such subsequent case (and that was 3 years later) occurred where a watercloset was used. This was in a very large public institution, and it is doubtful whether the watercloset infected by the first sufferer was used by the second.

## Typhoid Fever and Raw Shellfish.

In the appended table are set forth particulars of a remarkable group of 11 cases, in each of which the sufferer had during the Cheadle Wakes (24th to 28th September) eaten raw mussels from a certain stall on the Waterloo Fair Ground. The vendor was known, but owing to lapse of time, it was not found possible to trace the origin of the shellfish further than the Manchester Wholesale Market. It is curious that none of the cases ended fatally.

No.	Initials.	Address.	Age.		First Day of Illness.	Ate Uncooked Mussels.
			M.	F.		
1	W. S.	135, Wellington Road S.	21	...	Oct. 8th	Sept. 24th
2	E. R.	Grundy's Place, St. Thomas' Place...	13	...	Oct. 8th	Sept. 24th
3	W. B.	20, Lowe Street.....	15	...	Oct. 7th	Sept. 26th
4	A. A.	54, Waterloo Road .....	18	...	Oct. 12th	Sept. 26th
5	J. B.	15, Welcroft Street .....	19	...	Oct. 8th	Sept. 26th
6	W. C.	49, Hempshaw Lane.....	20	...	Oct. 12th	Sept. 26 & 27
7	J. F.	81, Northgate Street.....	16	...	Oct. 8th	Sept. 24th
8	H. B. T.	149, Chatham Street.....	25	...	Oct. 5th	Sept. 26th
9	W. H.	93, Chapel Street .....	20	...	Oct. 9th	Sept. 26th
10	H. K.	8, Smith Street .....	...	36	Oct. 19th	Sept. 26th
11	E. L.	61, Booth Street .....	33	...	Oct. 18th	Sept. 26th

In seven other instances, the details of which are set forth below, the patients had eaten raw shellfish, but the evidence as to the association of this fact with the subsequent illness was by no means as clear as in the cases already mentioned.

No.	Initials.	Address.	Age.		First day of Illness.	Ate Uncooked Mussels.	At.
			M.	F.			
1	S. H.	32, Lancashire Hill	...	45	Feb. 24th	Feb. 14th	Stockport.
2	S. H.	15, Church Road	59	...	Oct. 3rd	About 14 days before.	Blackpool.
3	J. F. B.	41, Herbert Street	22	...	Oct. 1st	Sept. 24th	Stockport, opposite Armoury.
4	P. W.	33, Bowden Street	21	...	Oct. 15th	Oct. 6th	Do. (?)
5	D. M.	6, Heaton Road ...	...	8	Oct. 7th	Several times in Sept.	New Brighton.
6	D. M.	29, Richardson St.	11	...	Oct 27th	Sept. 26th	Blackpool.
7	T. S.	45, Gt. Moor St...	21	...	Nov. 11th	Nov. 4th	Stockport.

### The Parts taken by the Urine and the Faeces respectively in the Dissemination of Typhoid Fever.

An important *résumé* of our present knowledge of this subject is published in "The Lancet" of May 20th, 1899, by Dr. Horton Smith, of St. Bartholomew's Hospital. His general conclusions are:—

1. That by reason of the apparently invariable presence in the early stage of typhoid bacilli in fair quantities in the stools of a typhoid patient, they must always be regarded as highly infectious during this stage, i.e., the first three weeks of the disease, and may again become so in connection with the commencement of a relapse.
2. That during the later stages, i.e., from the third week onwards, even for months, the typhoid bacilli are to be found in large numbers in the urine of 25% of all typhoid patients, and in about 5% of cases are so numerous as to render the urine turbid by their presence.
3. That as regards dissemination of the disease the urine is on the whole more dangerous and potent than the faeces of typhoid patients.
4. That both during the disease and during convalescence the urine should be most carefully disinfected.
5. That the administration of urotropin in 10 grain doses, ~~by the 10 grain doses~~, by the mouth, three times a day, is followed by the rapid and permanent disappearance of the bacilli from the urine.

Disinfection of typhoid urine has been practised at your hospital for some years, and the use of urotropin is now receiving a trial.

### Bacteriological Diagnosis of Typhoid Fever.

During the year the blood of 32 cases of suspected typhoid fever was examined by Professor Delépine. Of these 16 were reported by him as not giving the characteristic appearances of typhoid blood and several unnecessary removals to the hospital were thus obviated.

### Diarrhoea.

No less than 219 deaths were registered from this cause, of which 203 were amongst children under 5 years of age. This represents a mortality per 1,000 of 2.72 as compared with 1.22 for the 33 Great Towns, and 1.09 for the 67 Other Large Towns.

In regard to the connection of this malady with the earth temperature, at a depth of 4 feet, the sixth year's observation in Stockport (*vide chart*) are in close accord with Dr. Ballard's views.

Its relation to insanitary conditions of residence, early weaning, and injudicious hand-feeding has been repeatedly indicated.

The extent to which **diarrhoeal maladies can be spread by conservancy systems** is only too apparent in the terribly excessive infantile mortality from this cause which persistently inflates the death-rate of most of our northern towns, and which will, without any manner of doubt, continue to do so as long as wholesale pollution by leakage from midden privies continues to supply the soil with the putrid excremental matters known to be so favourable to the life processes of the micro-organism associated with this malady. "This organism, becoming air-borne as the result of physical actions such as the rise and fall of subsoil water, can thus gain access to food supplies, and above all, to the milk, which is so commonly stored for infants in miserable pantries opening out on to small confined ares and yard spaces, where emanations from filth accumulations blend with those forced out from the soil itself."

A handbill setting forth precautions against summer diarrhoea was again extensively circulated throughout the Borough during the summer.

### Scarlet Fever.

There was a very notable decrease in the prevalence of scarlet fever, 197 cases having been reported, as against 380 in 1897 and 353 in 1896. Eleven cases (or 5.6 per cent.) ended fatally. The mortality per 1,000 persons living was 0.13, against 0.14 for the 33 Great Towns and 0.10 for the 67 Other Large Towns.

Of the 197 persons attacked, 74 (or 37.5 per cent.) were removed to and treated in the Isolation Hospital. This percentage of removals is very much less than in previous years.

In my last annual report I pointed out to you that the experience of Stockport in recent years had suggested a question whether in large urban districts the wholesale isolation in hospital of scarlet fever is always productive of that preventive benefit which a Sanitary Authority is entitled to expect in return for the large expenditure involved. Between the first onset of illness to its diagnosis and the removal of the patient, two or perhaps three days usually intervene, during which the other members of a cottage household remain in close domestic contact with the sick person and are exposed to infection sufficiently long to favour their contracting the disease if they are susceptible to it. The value to them of hospital isolation of the sufferer is, presumably, therefore, very much less than if it could have been secured before their exposure to infection. As regards neighbours and outsiders, stricter supervision and cautioning should tend to diminish the inclination to enter infected houses, and render more effective and feasible the isolation of scarlet fever cases at home whenever this is reasonably possible.

Since the first January, 1898, this view has been to some extent acted upon here. Indiscriminate removal to hospital is not encouraged, and each case is considered individually in regard to the number of bedrooms and dwellers in the home, and the possibility of the healthy inmates obtaining temporary lodging elsewhere. Only where home isolation is practically impossible is removal to hospital sanctioned.

As in favour of hospital isolation, reference should, on the other hand be made to the very much lower mortality amongst those so treated, than amongst those nursed at home.

### The Microbes Associated with Scarlet Fever.

At page 326 of the Report of the Medical Officer of the Local Government Board, 1897-88, is a very suggestive "Report on the Microbes Associated with Scarlet Fever" by Dr. Klein, F.R.S., in which he says that "Kurth's contention that the *Streptococcus Conglomeratus* occurs constantly in the discharges of cases of acute Scarlet Fever, has now, as the result of a considerable number of observations, been fully confirmed; and its presence in the acutely inflamed throat of the human subject may, I believe, be regarded as denoting scarlet fever, in just the same way as under corresponding throat conditions, the diphtheria bacillus is accepted as diagnostic of diphtheria." Dr. Klein then sets out at pages 328-330 a number of interesting cases in which swab cultivations yielded colonies of the *Streptococcus Scarlatinæ*, and he also states that the *Streptococcus* is not to be found in normal throats or inflamed throats that are not scarlatinal.

As the result of this report and recognising the great difficulty not infrequently experienced in definitely diagnosing scarlet fever, I have consulted Professor Delépine as to the desirability of asking the Corporation to extend to doubtful cases of scarlet fever the arrangement for bacteriological examination by him, which already exists in regard to typhoid and diphtheria. The matter is still under Professor Delépine's consideration.

During 1897 10 Return Cases of Scarlet Fever occurred. Details are appended :—

Recurring Case.				Remarks.	
Initials.	Attacked.	Isolated.	Discharged	Initials. Attacked	Remarks.
First case in the house.				A mild uncomplicated case. Clear on discharge. No apparent recurrence of symptoms.	
L. M.	1897 Oct. 25	49 days.	Dec. 13	E. S. F. S.	1897 Dec. 29 1898 Jan. 29
E. B.	Nov. 22	44 days.	Jan. 5	J. S. G. B. G.	Moderately severe but uncomplicated. Clear on discharge. No apparent recurrence.
H. S.	Nov. 26	47 days.	Jan. 12	L. S.	Uncomplicated. Clear on discharge.
W. T.	Dec. 2	47 days.	Jan. 18	T. T.	Had slight left otorrhœa when discharged at parents' request.
H. T.	Dec. 2 1898	47 days.	Jan. 18		Nose sore when discharged at parents' request
A.L.	April 1.	50 days.	May 25th.	F.L.	Swelled neck-glands and sore nose. Nasal discharge recurred after return home.
G. L.	Sept 3	69 days.	Nov. 12	E. L.	Had double otorrhœa and nasal discharge, but clear at time of return home, except that face rather blotchy. Otorrhœa recurred subsequently.
Et. M.	Sept 25	69 days.	Dec. 3		Had left otorrhœa which ceased 23/11/98.
N. M.	Oct. 5	59 days.	Dec. 3		Clear on discharge. No apparent recurrence.
A. M.	Oct. 6	51 days.	Nov. 26	E. M.	Uncomplicated case. Clear on discharge.
					No apparent recurrence.
					Had albuminuria, swelled neck glands and nasal discharge, which had ceased for a week, but which recurred after return home.
				Dec. 14	Played with Et. M., N. M., & A. M.

## Diphtheritic Disease.

There were 12 cases of diphtheria and 2 deaths, and 3 cases of membranous croup and 1 death, making a total of **15 cases of diphtheritic disease and three deaths**, as compared with an average of 46 cases and 18 deaths in the preceding 5 years.

The **case-mortality** was equal to 20.0 per cent., as against an average of 37.6 for the preceding 5 years.

The **diphtheritic death-rate** per 1,000 persons living was 0.037, against 0.31 for the 33 Great Towns, 0.28 for the 67 other large towns, and 0.39 for London.

The lessened mortality from diphtheria in Stockport is very notable, the number of deaths being lower than in any previous year on which I have reported.

I beg again to draw your attention to the desirability of providing at your Isolation Hospital for the isolation of cases of this very fatal disease.

### The Significance of Bacteriological Reports in Diphtheria.

EXPLANATION BY PROFESSOR DELEPINE, M.B.

During the year Professor Delépine investigated bacteriologically six suspected cases of diphtheria. The specific organism of the disease was recognised in three cases, but could not be found in the remaining three.

On November 8th, 1898, the following report was received in regard to a case, seen by Dr. Hyde Marriott and myself, of slight but somewhat persistent sore throat and hoarseness :—

“ Diphtheria bacilli—short form —have been found in small numbers. The case would appear to be one of septic angina, streptococci being very abundant. It is, therefore, infectious, but the diphtheria bacilli found do not necessarily prove it to be one of diphtheria.”

Two days later another swab from the same throat was sent to Professor Delépine, who reported :—

“ This examination confirms the previous one. The short bacilli are extremely scanty, and may be ignored, the condition being probably septic.”

Being doubtful as to the necessity in such cases of putting in motion the whole machinery of isolation, disinfection, &c., I conferred with Professor Delépine, who has very kindly written me to the following effect, viz. :—

1. That on bacteriological examination of the throats of persons affected with diphtheria, or other diseases, various kinds of organisms are found, including :

(A) *Pseudo-diphtheria bacilli*, which resemble more or less closely the diphtheria bacillus, but as far as we know at present have no kinship with that organism, and would have attracted no special attention with regard to diphtheria had it not been for the possibility of their being mistaken for the diphtheria organism. The number of pseudo-diphtheria organisms is inversely proportional to the skill of the bacteriologist.

(B) *The true diphtheria-bacillus*, which it is now generally admitted may either be *long* or *short*, and *virulent* or *non-virulent*.

2. That generally speaking the *long* diphtheria bacillus is the one more frequently found in bad cases, but there are, nevertheless, severe cases in which none but the *short* form are to be found.
3. That the *number* of bacilli present has a very important significance.
4. That in diphtheria there is usually no difficulty in finding *many* colonies of the organism (short or long) on the inoculated serum after 20 hours.
5. That in the throats of persons nursing diphtheria patients, or suffering from mild sore throat, and even in the throats of apparently perfectly healthy individuals, typical diphtheria bacilli, *usually* of the *short* form and *scanty* in number, can be found now and again. These are regarded by Roux and Yersin as an attenuated variety, and the risk of infection therefrom is undoubtedly very slight as compared with that from throats loaded with large numbers of virulent bacilli. These cases may, however, at any time become a source of danger, especially owing to the tendency which such bacilli exhibit to multiply rapidly in the throats of patients affected with any form of angina.
6. That therefore all cases should be considered as suspicious and dangerous in which diphtheria bacilli (short or long) are found in the course of an ordinary bacteriological examination to be present in the *inflamed throat*, and finally
7. That when in addition to the presence of diphtheria bacilli the clinical symptoms are clearly those of diphtheria, there can be absolutely no doubt as to the diagnosis.

## Puerperal Fever.

5 cases were reported, of which 3 died. In each case the sanitary conditions were fairly good ; each was attended by a separate doctor and midwife.

The midwife was warned in every case, and her clothing disinfected.

## What is meant by NOTIFIABLE PUPERAL FEVER?

At p. 27 of the Annual Report for 1897, the belief was recorded that many cases of puerperal fever were not notified at all, though some of them appeared in the death returns under other names.

In this respect the experience of other places, including London, has been similar, and in August, 1898, the London County Council wrote to the Royal College of Physicians, asking the advice or guidance of the President with respect to the notification of infectious puerperal diseases.

To consider this letter the college appointed a Committee consisting of Dr. Payne, Sir John Williams, Bart., Dr. Cullingworth, Champneys and Tatham, and in November, 1898, these experts reported that they had unanimously resolved as follows:—

“ That this Committee is of opinion that with a view to the limitation of dangerous infectious diseases, the London County Council would be acting rightly in adopting the view that the expression ‘Puerperal Fever, as contained in Section 55 (8) of the Public Health (London) Act, 1891, should be taken to include: ‘Septicaemia, Pyoemia, Septic Peritonitis, Septic Metritis, and other Acute Septic Inflammations in the Pelvis occurring as the direct result of Childbirth.”

This resolution was embodied in a letter, which was approved and signed by the President, forwarded to the County Council, and adopted by them.

Section 55 (8) of the Public Health (London) Act, 1891, is exactly similar to Section 6 of the Infectious Diseases Notification Act, 1889, which is in force in Stockport, and I therefore suggest that the College of Physicians’ resolution might with advantage be adopted by you as a guide in this matter, and that a circular to this effect be sent to each medical practitioner.

## Erysipelas.

46 cases were reported and 3 deaths registered. In the majority of instances no history of injury was obtained, but structural sanitary defects were occasionally detected and remedied.

## Whooping Cough.

18 deaths were registered, all of which were those of children under 5. This represents a rate per 1,000 of 0.22, as against 0.31 in the preceding five years.

For the 33 Great Towns this rate was 0.42, and for the 67 Other Large Towns 0.27.

The ward-incidence of the disease is shown in Table A (p 9). The monthly occurrences were as follows:—

January .....	5	April ...	1	July .....	0	October.....	0
February .....	4	May ...	1	August .....	0	November...	1
March .....	5	June ...	0	September..	1	December ...	0

## Lung Diseases.

### Phthisis or Consumption.

Excluding 8 deaths from out townships, 146 deaths were registered, equal to a rate of 1.8 per 1,000 per annum, against 1.5 in 1897 and 1.341 for England and Wales in 1897.\*

As regards ward-incidence, St. Mary's comes first with 2.9 per 1,000 persons living ; then follow Lancashire Hill and Shaw Heath with 2.7 each, Spring Bank (2.5), Heaton Lane (2.1), and Heaviley (2.1). On the other hand, Cale Green, Vernon, Edgeley, and Hempshaw Lane are the lowest with 0.3, 1.02, 1.2, and 1.2 respectively.

32 deaths from consumption occurred in the Workhouse.

A Special Report on the general question of Tuberculosis and its Prevention is in course of preparation, and will shortly be submitted to you.

### Bronchitis, Pneumonia, and Pleurisy.

The deaths from these maladies numbered 338 (of which 144 were of children under 5), as against 393 in 1897, 386 in 1896, 463 in 1895, and 301 in 1894.

The death-rate for the Borough from these diseases was 4.1 per 1,000 living. As regards the Wards, Portwood (7.2), Spring Bank (5.7), Heaton Lane (5.1), Vernon (4.8), and St. Mary's (4.7) stand highest ; Hollywood and St. Thomas' follow closely with 4.5 and 4.3, whilst the lowest rates are shown by Edgeley (2.1) and Cale Green (2.4).

## Contagious Diseases (Animals) Acts, 1894 and 1896.

The duty of administering these Acts was, during 1898, transferred to the Police Department, to which it legally belongs.

## The Isolation Hospitals.

### A—THE DIALSTONE LANE HOSPITAL.

Occupies an area of 3 acres 1 rood at the junction of Dialstone and Cherry Tree Lanes. The subsoil is yellow boulder clay.

Cost :—

Cost of Buildings	.....	7079	13	4
Cost of Site	.....	1346	14	0
Cost of Furnishing	.....	1203	10	4 to Jan. 1st, 1899.

The Hospital was opened for the reception of patients in 1881.

## CASES TREATED FROM 1888 TO 1898 INCLUSIVE.

	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Smallpox .....	98	0	1	0	6	22	26	2	1	0	0
Scarlet Fever..	35	36	91	32	26	127	138	100	247	249	79
Typhus .....	3	0	0	0	1	0	0	0	0	0	0
Enteric .....	12	14	22	15	16	85	20	37	34	35	53
Diphtheria ...	0	0	2	1	2	9	1	0	1	0	0
Other diseases	1	16	4	0	0	1	0	1	0	0	0
	149	66	120	48	51	244	185	140	283	284	132
	—	—	—	—	—	—	—	—	—	—	—

## PAYMENTS BY PATIENTS.

	£ s. d.		£ s. d.		£ s. d.
1888 .....	108 4 6	1892 .....	150 18 6	1896 .....	191 8 11
1889 .....	591 10 9	1893 .....	122 12 0	1897 .....	319 11 3
1890 .....	122 14 6	1894 .....	150 9 10	1898 .....	264 14 1
1891 .....	25 7 0	1895 .....	176 15 4		

Total in 11 years = £2,224 6s. 8d.

## NETT COST OF MAINTENANCE.

	£ s. d.		£ s. d.		£ s. d.
1888 .....	715 0 2	1892 .....	509 19 8	1896 .....	1544 11 7
1889 .....	864 19 0	1893 .....	1392 8 11	1897 .....	1592 9 6
1890 .....	606 16 2	1894 .....	1313 12 0	1898 .....	1316 7 8
1891 .....	928 6 2	1895 .....	1137 5 11		

## Summary of Hospital Expenditure.

	1898.	1897.
	£ s. d.	£ s. d.
Salaries, Wages, and Uniforms .....	550 14 10	554 6 8
Food Account and Drugs .....	577 18 5	737 9 8
Coal, Coke, Gas, and Water .....	176 16 3	214 8 6
Rates.....	60 1 1	57 0 5
Telephone Rent .....	13 0 0	13 0 0
Repairs .....	107 16 5	154 13 4
Painting .....	33 6 5	54 0 11
Repairs to Ambulance Van .....	...	21 19 1
Linoleum, Felt, &c. .....	8 16 0	...
Miscellaneous .....	52 12 4	105 2 2
	1581 1 9	1912 0 9
Less amount received from other Authorities for Removal and Isolation of their cases, Disinfection, &c. .....	264 14 1	319 11 3
Nett Expenditure .....	£1316 7 8	£1592 9 6

I am indebted to the Borough Treasurer for the statements from which this summary has been prepared.

In the following table ~~etc~~ set forth particulars in regard to the number of patients isolated during the year 1898 :—

Disease.	In Hospital, 1st January, 1898.	Admitted.	Recovered.	Died.	Remaining in Hospital 31st December, 1898.
Scarlet Fever...	36	79	111	1	3
Typhoid , , ...	5	53	41	9	8
Totals .....	41	132	152	10	11

1 case of typhoid, 1 case of continued fever, and 4 of erysipelas were treated in the Union.

Average length of isolation for scarlet fever cases 52 days.

," , , , typhoid , , 35 ,

#### HOSPITAL STAFF.

The nursing and household arrangements worked smoothly and efficiently under the Matron's careful and very competent supervision. The Steward (Mr. R. Marvell) was solely responsible for the working of the Steam Disinfector and of the Steam Laundry engine, &c. Over 7,800 articles were disinfected by steam, and the fact that no complaint as to staining reached me is the best tribute to his care and skill.

The Steward has also charge of the Bathing Station, at which 145 inmates of infected houses were bathed during the year.

#### FURTHER HOSPITAL ACCOMMODATION NECESSARY.

This very serious want is, I believe, fully recognised by the Sanitary Committee, and should be met as soon as is reasonably possible by the erection of a new pavilion. At present there is no provision for the isolation of more than two kinds of infectious illness, and hence no diphtheria cases can be admitted.

#### OTHER REQUIREMENTS.

An unclimbable impenetrable fence 6ft. 6in. high, round the hospital grounds, and the partitioning off by similar fences of the grounds used by convalescents from different diseases.

The provision of a small destructor for burning the discharges of typhoid patients is also very desirable.

#### B.—WHITEHILL.

#### SMALLPOX HOSPITAL.

This hospital was not used during the year.

Structural and other details in regard to this hospital are recorded at p. 49 of the Annual Report for 1893, and at p. 46 of the 1894 Report.

## Disinfection.

349 rooms were cleansed and disinfected.

The agent used for this purpose is a 1 per cent. solution of bleaching powder (chlorinated water), coloured with a small amount of permanganate of potash.

As already stated, 7,860 articles were disinfected by steam, and 145 inmates of infected houses bathed.

Since the end of 1897 Bleaching Powder has been used instead of Carbolic Acid Powder for the deodorization and attempted disinfection of road and yard surfaces fouled by privy contents, and the result has been most satisfactory.

### DISINFECTION BY FORMALDEHYDE VAPOUR.

Formaldehyde, the chemical symbol for which is  $\text{C H O H}$ , is obtained from methylated spirits, also called wood spirit,  $\text{C H}_3\text{O H}$ , by taking 2 atoms of hydrogen (H) from the methylated spirit, and when the atmosphere is charged with 2% of this formaldehyde vapour a powerful disinfecting action is exerted on surfaces exposed thereto, but the penetrative power of the vapour is small.

A 40 per cent. solution of formaldehyde in water is known as "Formalin," and when Formalin is evaporated, or heated, a whitish substance known as "Paraform" is formed, which is cast into tabloids and sold with a lamp so constructed that, by placing the tabloids in a metal receptacle over the flame of a spirit lamp, formaldehyde vapour is given off.

The necessary appliances have been purchased by you for the application of this method of disinfection to books, leather goods and the like, which are liable to serious injury by steam disinfection.

## Public Water Supply.

Complaints as to the discolouration of the public water service were received during the summer both from private consumers and from the Baths' Superintendent, and had reference almost entirely to the water supplied from Manchester. This discolouration was apparently due to suspended peaty matter.

I have on several recent occasions inspected the Disley Gathering Ground. Pail-closets of a good type have been substituted for the stone privy pits to which in previous reports I have objected, and I am of opinion that the gathering ground is in a very satisfactory condition.

If the Stockport Corporation Water Bill, 1899, pass into law, and the Corporation become the owners of the water undertaking, it is intended to construct an additional filtered-water-tank at the High Lane filtration works, to apply the Porter-Clark softening process to the Wilmslow water, and possibly to sink another deep well at Wilmslow.

I have examined chemically samples of Disley, Wilmslow, and Manchester water, with satisfactory results.

## QUANTITY OF WATER REQUIRED FOR FLUSHING WATER CLOSETS, &amp;c.

A special report on this subject is included herewith *vide Appendix C.*

### Meteorelogical Station.

Owing to the generosity of Mr. Thomas Kay, J.P., this station is now excellently equipped. Useful observations were taken and reduced daily throughout the year, and published in the local Press.

### Chief Industries.

Felt-hat making, cotton spinning, bleaching, weaving, and printing are the chief industries of the town, but there are several large breweries and other important commercial undertakings, e.g., tobacco and chocolate works. The influence of these various occupations on the health of the operatives engaged therein is a subject for inquiry when statistics become available.

### Action Taken under the Housing of the Working Classes Act, 1890.

During the year the following nine houses were reported to the Sanitary Committee as unfit for human habitation. Four of them have since been demolished :—

- 86a, Churchgate, now only used as workshop.
- 107, King Street West, nothing yet done.
- 1, Lloyd's Place, demolished.
- 22 and 24, Hempshaw Lane, made habitable.
- 2, 4, and 6, Providence Street, demolished.
- 8, Tatton Road South, nothing yet done.

### House Drainage.

Although the researches of Messrs. Law and Andrews have to some extent discounted the power for evil with which sewer-air has been credited, there is very little doubt that emanations from infected sanitary appliances and soil specifically polluted through leaking house drains are closely associated with occurrences of typhoid fever and diarrhœa ; and, as one advocates a perfect and not a faulty water-carriage system, it is of the first importance that such defective conditions should be as far as possible prevented. **All closet connections and drains should be required to withstand the water-test before being passed, i.e., the outlet of the drain should be plugged, the drain and soil-pipe filled with water, the level of which should remain unaltered.** It is objected that this test is too severe, but I would point out that **the water test only anticipates exactly what occurs in practice when from any cause a drain gets blocked** and the sewage accumulates on the house side of the obstruction. If the drain joints are defective, pollution of the surrounding soil then results, and in the case of a large house at which I was called upon to investigate serious throat illness, I found the soil and house walls polluted from this cause to a depth of nearly 3 feet. To obtain these watertight conditions :—

1.—All plumbing joints should be well made.

2.—All drains should be laid with a suitable fall, on a firm cement concrete bed, with carefully made joints of cement and gaskin, or some material other than the almost universally used "puddle," which is wholly incapable of withstanding the water-test and which is liable to be washed away, or, as was recently found, grown through by roots in its neighbourhood.

3.—House drains and soil pipes should be adequately ventilated, and closets within houses should, where possible, be fixed in a cross-ventilated annexe.

4.—Liability to **heavy penalty for "scamping" domestic drainage work** (*vide* Public Health Act (London), 1891, sec. 42) should be extended to the Provinces. This power will be possessed by you when the Stockport Corporation Bill, 1890, becomes law.

The gross incompetency and carelessness which at present too frequently characterize such work, are evils which merit serious public attention.

5.—All drainage work should be examined and tested by trained inspectors. For such work skilled plumbers are without doubt specially fitted, as their success in their calling guarantees a high degree of intelligence and usually a good general acquaintance with the other building trades.

In regard to **sewer construction** the same general principles apply, though the question of the necessity and best method of sewer ventilation is one upon which opinions differ.

## Sewerage System.

60 lineal yards of old sewers were taken up and re-laid during the year. 3191 $\frac{5}{6}$  lineal yards of new sewers were constructed.

### VERTICAL SHAFT VENTILATORS FOR SEWERS.

7 were erected during the year, making a total of 77 in the areas most affected by typhoid. No road surface ventilators were closed.

### INTERCEPTING SEWERS AND SEWAGE OUTFALL WORKS.

These works are now completed, with the exception of the land filters. The tank treatment of the sewage commenced on December 9th, 1898.

## Excrement and Refuse Disposal.

A census of the various sanitary conveniences in the Borough was taken by your Inspectors in 1897. Allowing for the number of privy pits since done away with and for the number of water-closets provided in lieu thereof and in connection with new houses, the following figures are believed to indicate very closely the present condition of affairs.

Privies.	Privy-pits.	Pail-closets.	Water-closets.	Slop-closets.	Dry-Ashpits.
9274	5858	327	4021	672	1457
4693					

The following table, furnished by the Borough Surveyor, shows the number of new privies and privy pits constructed during the six years 1893-8 inclusive:—

	W.C.'s, including Slop-closets.	Privies	over	Privy Pits.
1893	232	71		45
1894	224	143		74
1895	177	87		48
1896	223	46		20
1897	298	14		5
1898	220	6		3
Totals .....	1374	367		195

The provision of closet accommodation for many of the mills and factories, and in some of the schools, is in an unsatisfactory condition.

As to the very great and constant danger and injury to health occasioned by the existing defective mediæval midden privy system, and the nuisance inseparable from its scavenging, I beg to confirm and refer you to what I have stated in my previous annual reports. I append figures, which speak for themselves, as regards diseases largely due to the wholesale soil and air pollution occasioned by these receptacles, and I beg to recommend to your consideration, as of the first importance to the health of your Borough, the question of the adoption of some general scheme of water carriage therein:—

#### DEATH-RATE PER 1,000 IN

Year.	STOCKPORT.											England and Wales.
	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1887 to 1896	
Typhoid Fever }	0.47	0.15	0.23	0.24	0.23	0.67	0.10	0.26	0.28	0.25	0.32	0.17
Diarrhœa ...	0.67	0.77	1.13	0.91	0.73	2.73	1.3	2.17	1.61	2.69	1.33	0.66
All Causes ...	25.03	23.5	26.5	26.9	22.7	23.9	18.7	24.8	20.6	20.4	23.9	18.8

#### THE MIS-USE OF WATER-CLOSETS.

The Public Health Acts (Amendment) Act, 1890, Sec. 21 (2) provides that if any Sanitary convenience is allowed to become, for the want of proper cleansing, a nuisance or annoyance, to any inhabitant of the district, each of the persons having the use thereof is liable to penalty if the actual offender cannot be produced.

During the year 4 householders having the common use of a water-closet were summoned, and each fined 2s. 6d. and costs under this Section. These cases had a salutary effect, as, in several other instances, a threat of similar proceedings was sufficient to induce those who had the use of the water-closet to remove obstructions and do repairs necessitated by the improper use of these conveniences.

In consideration to property-owners, who have put in water-closets in working-class dwellings, the Sanitary Committee have empowered the Medical Officer of Health to prosecute such offenders, when necessary, and also to send a man to remove obstructions, when he thinks it is advisable to do so.

## Day Scavenging Department.

7,413 loads of refuse have been removed from 3,675 dry ash pits.

798 . , sand , put on ,  
80 . ,

340      „      sand      „      put in depots  
161      „      cinders      „

161     "       cinders     "        "     "     "  
3,221 tanks of water        put on streets.

5,221 tanks of water „ „ „ put on street  
5 loads snow removed from streets.

## Night Scavenging Department.

20,028 loads of refuse have been removed from 7,330 privy pits, &c., at a cost for the year of £5,747 0s. 0d.

The work of scavenging is now controlled by a special Sub-committee, whose desire it is to adopt the block system as far as the peculiar conditions of the work allow. Mr. Councillor Redfern continues to devote a large amount of personal attention to this department.

I should fail in my duty if I did not once again point out that no practicable organization, however efficient it may be, can obviate the very great nuisance inseparable from the disturbance of large quantities of putrid excremental filth. This can only be obtained by the introduction of water-carriage, and now that your sewerage works are practically complete, I venture to hope that the matter may receive your early consideration.

## Tips.

There are still two tips, viz., one in Newbridge Lane and one in Charles Street.

Complaints were from time to time received in reference to Newbridge Lane Tip, and I beg to confirm and refer you to what I have previously stated in regard to the nuisance *necessarily* and *inseparably* associated with *any* enormous accumulation of filth in the vicinity of dwellings and of a large school, and on the outcrop of a water-bearing stratum.

Of course this wet ashpit and other refuse must be got rid of somehow. Destruction by fire is the most effective, though not the least costly, method. Pending its adoption, the desideratum is that tips should only be formed and used in situations remote from dwellings.

It is satisfactory to know that Newbridge Lane Tip is not expected to be available for more than about two years longer, and that careful inquiry is being made by a Sub-committee as to the form of destructor most suitable for adoption in Stockport.

193 journeys were made by the horse-ambulance to the Isolation Hospital with patients or infected clothing.

The nett expenditure for the year to 31st December, 1898, on account of the Day Scavenging Department was £3745 9s.



## General Inspection of the District.

Appended is a summary of the notices served in the four districts into which, for the purposes of inspection, your district is divided:—

In addition, in an increasing number of instances nuisances were abated and improvements effected as the result of verbal representations to property owners. As the service of formal notices was not necessary in these cases they are not included in the foregoing table.

178 foul privy pits were demolished and replaced by 194 water-closets and two water-latrines, with the necessary drain connections and ventilation.

In the following statement is set forth the number of blocks of buildings and of the included houses the drainage of which was completely re-arranged during the year :—

DISTRICT	WARDS.	BLOCKS.	CONSTITUENT HOUSES.
No. 1	Old Road ..... Lancashire Hill ..... Heaton Lane .....	30	109
No. 2.	Hollywood ..... Edgeley..... Shaw Heath..... Cale Green ..... Spring Bank (part) .....	27	84
No. 3	Spring Bank (most of) ..... St. Mary's       , ..... St. Thomas'     , .....	16	87
No. 4	Portwood ..... Vernon ..... Hempshaw Lane ..... Heaviley..... St. Thomas's (very little) ..... St. Mary's     , .....	15	93
	TOTALS.....	88	373

80 complaints were registered in the office, and a considerable number were made verbally to the Inspectors whilst going through their districts.

Chief Inspector Marshall's health gave way very seriously in December, as the result, I am of opinion, of the severe illness contracted by him in 1896, when superintending the opening of a very foul drain.

Inspector Ramscar was promoted to be Building Inspector under the Surveyor.

### Bakehouses.

1 new bakehouse was opened during the year, and 1 cellar bakery closed. The number now registered is 52, and these were regularly inspected during the year. In the majority of cases their condition is fairly satisfactory, but as regards ventilation and lighting a few cellar bakeries are far from perfect.

## Ice Cream Shops, &c.

There are in Stockport 32 places where ice cream is manufactured and sold, in addition to street barrows, of which latter there are about 10.

I have inspected many of these establishments and have received my inspectors' reports about the condition of the others.

The materials used consist invariably of good milk, eggs, cornflour, and sugar, which are *well boiled together*, forming a thick custard, which is afterwards cooled and frozen.

In the case of one Italian maker, who works on a small scale, the house was very dirty, and the boiling custard is allowed to cool either in a confined yard or in the living room. In a number of cases the cooling process takes place in a yard more or less near a privy pit, and in other instances in cellars where there is a trapped opening to a drain.

- It is desirable that the Sanitary Authority shall have power to ensure
  1. That the houses are generally clean.
  2. That the cooling process is carried out under satisfactory conditions of freedom from risk of contamination.
  3. That any case of infectious illness in the house is at once notified.

The Liverpool Corporation Act, 1898, Sec. 32, prohibits the manufacture or storage of ice cream "in any cellar or room in which there is an inlet or opening to a drain, and provides that proper precautions shall be taken against infection or contamination of ice cream or other similar commodity, and for notice being given of any outbreak of infectious disease amongst persons employed in the business.

A similar clause is included in the Stockport Corporation Bill, 1899.

The claim for more complete control is justified by the fact that considerable outbreaks of disease have been caused by the consumption of icecream, viz. :

- 1875. Scarlatina, South Kensington.—Dr. Buchanan.
- 1884. Irritant poisoning, 130 persons in New York.—*Lancet*.
- 1886. Irritant poisoning, 18 persons in Michican.—*Lancet*.
- 1891. Enteric Fever in Deptford.—Dr. George Turner.
- 1897. Enteric fever in Liverpool.—Dr. Hope.
- 1898. Irritant poisoning (18 persons) in Antwerp.
- 1898. Irritant poisoning (1 case) in Stockport.

## Milk Supply.

### DAIRIES, MILK SHOPS, COWSHEDS, &c.

The number of dairies and milkshops in the Borough was 143, and these were frequently inspected.

The number of cowsheds within the Borough is 18, viz., 5 in Heaton Norris, 1 in Cale Green, 1 in Edgeley, 3 in Hempshaw Lane Ward, and 8 in the semi-rural Heaviley Ward. These places were again systematically inspected with regard to their cubic capacity, drainage, ventilation, water supply, and general adaptability.

In the Stockport Corporation Bill, 1898, clauses are inserted embodying some of the recommendations of the Report (1898) of the Royal Commission on Tuberculosis. These clauses were agreed upon at a Conference held in the House of Commons on 18th April, 1899, and provide

- (1) Penalty on selling milk of tuberculous cows.
- (2) Penalty on failing to isolate tuberculous cows.
- (3) For notification of tuberculosis of the udder.
- (4) Power to take samples of milk within or without the Borough.
- (5) Power to inspect and to take samples of milk from milch cows in and to suspend milk supply from infected dairies within or without the Borough.
- (6) To apply, by a veterinary surgeon, the tuberculin test to cows, with the consent of the owner.

I hope shortly to deal more fully with this question in a Special Report on Tuberculosis.

### Slaughter Houses.

These numbered 40 and 1 knacker's yard, and were regularly inspected each week. Some of them are very good, the majority are fairly good, while a few of them are structurally ill-adapted for the use to which they are put. In every case a good supply of water is laid on, and they are kept in a fairly satisfactory condition. Most of them are unfortunately situated in crowded localities and in close contiguity to dwelling-houses.

#### UN SOUND MEAT PROSECUTION.

One seizure of unsound meat (a badly Tuberculous carcase) was effected during the year, and the vendor was fined £10 and costs, or one month's imprisonment.

### Fried Fish Shops.

There are about 92 Fried Fish Shops in the Borough, and their condition is, generally speaking, clean and satisfactory. Complaints have, however, been occasionally received in regard to the smell from some of them. Sec. 114 of Public Health Act, 1875, provides a means of controlling these establishments.

### Tripe Dressing Establishments.

These places numbered 17, and during the year were regularly inspected. With some two or three exceptions they are all fairly suitable for the use to which they are put; they all possess a plentiful supply of clean water, and were kept fairly well limewashed and cleansed.

## REGISTERED COW-SHEDS WITHIN THE COUNTY BOROUGH OF STOCKPORT.

Inspector Ramscar.

NAME.	No. of Sheds.	Cubic Capacity.	No. of Cows Allowed.	No. of Cows Shelter	Drainage.	Ventilating and Lighting.	Water Supply.	Condition as to Paving.	Condition as to Cleanliness.	Distance of Manure H'p	REMARKS.
Worth Meadow Farm ..	1	6264	7	3	No drains inside	Through ventilation well lighted	Towns	Fair	Very fair	10ft.	This shed is constructed of brick piers, with intervals of timber, and is fairly well adapted.
Victoria Park Farm .....	1	1520	2	1	Fair	Through ventilation fairly well lighted	Towns	Fair	Very fair	30ft.	Brick structure, well adapted.
Holly Mount Farm .....	3	3418 2565 1753	4 3 2	0 5 2	Cesspool	Through ventilation fairly well lighted	Rain	Good	Very fair	20ft.	Brick structures, well adapted.
Lisborne House Farm ..	2	3990 3010	5 3	4 0	Cesspool	Through ventilation fairly well lighted	Rain	Fair	Fair	12ft.	One brick and one wooden structure, fairly well adapted.
Cherry Tree Farm. ....	2	8380 2300	10 3	9 3	Good	Through ventilation fairly well lighted	Towns	Indifferent	Fair	40ft.	Brick structures, fairly well adapted.
Dial House, Mile End ..	2	10640 1576	13 2	12 1	Cesspool	Through ventilation fairly well lighted	Well	Very good	Clean	None on premises	Brick structures. The larger one is excellently adapted.
Marsland's Farm, Cow Lane	2	2108 1700	3 2	2 4	Cesspool	Through ventilation no windows	Pond	Fair	Fair	12ft.	Brick structures, fairly well adapted.
Hempshaw Gate Farm ..	1	2812	4	6	Very good	Through ventilation not very well lighted	Towns	Very good	Very clean	50ft.	Brick structures, fairly well adapted.
Pear Tree Farm, Dial-stone Lane	2	2934 2833	4 4	4 3	Good	Through ventilation no windows	Towns	Fair	Fair	50ft.	Brick structures, fairly well adapted.
Oak House, Stepping Hill	1	2856	4	2	Good	Very well lighted and ventilated	Towns	Very good	Remark'bly clean	50ft.	Brick structure, very well adapted.
Nangreave Farm .. ....	1	2323	3	4	No system	Through ventilation fairly well lighted	Well	Fair	Fair	50 yds.	Brick structure, fairly well adapted.

Inspector Billingham.

Brown House Farm ..	3	3360 3120 2600	4 4 3	6 7 7	Good to Cesspool	Through ventilation well lighted	Towns	Fair	Fair	14ft.	Brick structures.
Danby Farm .. .... ..	2	1729 1601	2 2	6 0	Good	Through ventilation well lighted	Towns and well	Fair	Fair	50 yds.	Brick structures.
20, Penny Lane .. ....	1	3230	5	5	Good to Cesspool	Through ventilation well lighted	Spring	Fair	Fair	12 yds.	Brick structure.
Manvers St. (Spencer's)	1	1729	2	4 and 1 horse	Fair	Through ventilation	Towns	Fair	Fair		Brick and wood structure.
Smith Street .. .... ..	1	1397	2	2	Good	Through ventilation well lighted	Towns	Fair	Fair	None on premises	Brick structure.

Inspector May.

Edgeley Farm .. .... ..	4	1296 3248 3690 5200	2 4 4 6	2 7 11 3	Good	Through ventilation well lighted	Towns and well	Very good	Very clean	15 yds.	Brick structures, very well adapted.
Cale Green Farm .. .... ..	2	5080 2552	6 3	8 6	Good	Through ventilation well lighted	Towns and well	Fair	Clean	20 yds.	Brick structures, well adapted.

— 400 METRE, 1000

## Offensive Trades, &c.

These include :—Knacker and bone boiler, three tanners, one tallow-melter, one fell-monger, and two bird-lime makers.

Frequent complaints was made about the premises and business of one tallow-melter, who was summoned before the Sanitary Committee and severely cautioned.

## Workshops.

The work of inspection was regularly carried out during the year. Cases of overcrowding and want of cleanliness were few in number, the most usual faults being defective and insufficient closet accommodation, and imperfect ventilation. The latter is often a most difficult matter to remedy. To provide a constant supply of fresh air without creating cold and draught, is, as you are aware, of paramount importance from a hygienic point of view, but while the physical difficulties in doing so are very great, the inclinations of the workers are even a greater obstacle, for such windows and flues as do exist are carefully fastened or stopped up in most cases, except in the hottest weather.

## Common Lodging-houses.

The insufficiency and unsatisfactory condition of these places has become so marked that a Special Report on the subject has been recently prepared, and is included herewith. (See Appendix A).

## Smoke Nuisances.

68 observations were taken during the year. The method adopted is for two inspectors to watch not more than three chimneys for two consecutive hours, marking in a suitable book, the proportion of each five minutes of the two hours during which dense, medium, and no smoke is emitted from each chimney. This occupies most of the working morning or afternoon of two inspectors, and, as conviction implies no moral disgrace whatever, and the fines are nominal, little or no improvement results, and it is not difficult to employ the inspectors more profitably. This is the reason why the number of observations now recorded is comparatively small. The time-limit for dense black smoke is seven minutes in two consecutive hours, and this was exceeded in 9 cases. One of the defendants was fined 20s. and costs, one fined 10s. and costs, and seven were fined 5s. and costs.

Apart from the evil of actual air pollution, the emission of such quantities of smoke has indirectly a most pernicious effect on ventilation of dwellings, as people who like to keep their houses clean, are very naturally disinclined to keep their windows open in a smoky atmosphere.

## Sale of Food and Drugs Act.

78 samples were taken under this Act during the year and submitted to the Public Analyst, particulars of which are as follows:—Milk 68, coffee 9, and 1 orange quinine wine.

Prosecutions followed in 6 milk cases (*vide* table *infra*).

## Legal Proceedings during the year 1898.

Offence.	Result.	Sentence.
Neglecting to keep Closets in a proper sanitary condition.....	Convicted	£ s. d. 0 2 6 and costs or seven days hard labour.
Do. Do.	Do.	0 2 6 and costs. Do.
Do. Do.	Do.	0 2 6 and costs. Do.
Do. Do.	Do.	0 2 6 and costs. Do.
Selling adulterated Vinegar.....	Withdrawn	
Selling adulterated Milk .....	Do.	
Do. Do.	Dismissed	
Do. Do.	Withdrawn	
Do. Do.	Convicted	Costs.
Do. Do.	Do.	0 10 0 and costs & Advocate's and Analyst's Fee.
Do. Do.	Withdrawn	
Emitting black smoke from mill chimneys .....	Convicted	0 5 0 and costs.
Do. Do.	Do.	0 5 0 and costs.
Do. Do.	Do.	0 10 0 and costs.
Do. Do.	Do.	0 5 0 and costs.
Do. Do.	Do.	1 0 0 and costs.
Do. Do.	Do.	0 5 0 and costs.
Do. Do.	Do.	0 5 0 and costs.
Do. Do.	Do.	0 5 0 and costs.
Do. Do.	Do.	0 5 0 and costs.
For having the carcase of a cow which was diseased on his premises .....	Dismissed.	Costs, and slaughter house to be closed.
For having deposited in a slaughter-house a carcase of a cow which was diseased, unwholesome, and unfit for the food of man.....	Convicted.	10 0 0 and costs and Advocate's fee, or one month's imprisonment with hard labour.

## LINES FOR FUTURE ACTION.

The Annual Report of the Medical Officer of Health is required to "indicate directions for further consideration and action." These have been already discussed in detail, and it only remains for me to briefly summarise as follows the various recommendations submitted to you :—

- (1) **The consideration and adoption of a comprehensive scheme for the conversion of the midden-privy to the water-carriage system of disposal of refuse, and the abolition of Tips in the town.**
- (2) The revision of the Bye-laws with respect to the construction of sanitary conveniences in connection with buildings.
- (3) The continuance and extension of your efforts to provide for the thorough cleansing and ventilation of the public sewers ; and the removal, as soon as it can be afforded, of the existing defective flagged or bricked sewers.
- (4) The general improvement of the housing of the working classes by the continued enforcement of existing legislation in that respect ; and as regards new property, *by entirely disallowing the erection of any further privies and by enforcing stricter compliance with the building bye-laws*, especially those with regard to **the drainage of subsoils, the asphalting or concreting of sites, and the provision of water-tight drain-joints.**
- (5) **The provision of suitable, sufficient, and well-ordered common lodging-house accommodation.** In other large communities this has proved a very remunerative private enterprise.
- (6) **The provision of additional hospital accommodation** to permit of the separate isolation of each of the more serious notifiable diseases, and of **facilities for destroying by fire the discharges of typhoid patients, and the erection of an unclimbable continuous barrier 6ft. 6in. high, around the hospital grounds.**

Various other lines of sanitary progress might be indicated, *e.g.*, the provision of a public abattoir, but being of secondary importance as compared with the foregoing recommendations, these matters will doubtless have for the present to stand aside.

CHARLES PORTER

*Medical Officer of Health.*

22nd June, 1899.

(P.T.O.)

## APPENDIX A.

Report by the Medical Officer of Health on the Common Lodging Houses of the Borough.

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TO THE CHAIRMAN AND MEMBERS OF THE SANITARY COMMITTEE, STOCKPORT.

GENTLEMEN,

I beg to submit to you the following report upon the insufficient and unsatisfactory nature of the Common Lodging House Accommodation of the Borough.

GENERAL SANITARY REQUIREMENTS OF LODGING HOUSES.

The Public Health Act, 1875, as you are aware, provides that all common lodging houses shall be registered and shall be kept only by registered keepers.

Before a house can be so registered it "must have been inspected and approved for the purpose by some officer of the Local Authority," and the Local Government Board have officially laid down very definite rules for the guidance of the inspecting officers. The house should (1) possess the conditions of wholesomeness needed for dwelling-houses in general, and (2) it should have arrangements fitting it for its special purpose of receiving a certain number of lodgers.

The Board's requirements include dryness of foundations, proper drainage, guttering, and spouting, well-paved yards and areas, good walls, roofs and floors, efficient ventilation of rooms and staircases by opening windows, and a minimum allowance of 300 cubic feet air space per person, and adequate kitchen and day-room, washing, and closet accommodation.

In regard to closet accommodation, No. XI. of your Bye-laws requires each lodging-house keeper to provide as many "soil-pans or water-closets" as the Officer of Health shall certify to be sufficient.

RECENTLY-DEMOLISHED LODGING-HOUSES.

In 1893 four exceptionally bad lodging-houses, containing 56 beds, were closed by you, two upon the death of the licencees, and two which were reported to you as wholly unfit for human habitation. Four others, viz.:—Barratt's in Small Street, Molyneux's in Higher Hillgate, Barratt's in Birch Street, and Platt's in Bosden Street, have been recently pulled down. These latter four houses were licensed for 194 lodgers in all.

## EXISTING REGISTERED LODGING-HOUSES.

At present there remain on your register 13 common lodging-houses, containing 106 double and 308 single beds for 520 persons. During the past week each of these houses has been carefully inspected and re-measured up, and the results are tabulated herewith for your information. You will observe that of 97 licensed rooms, 44 were found to be overcrowded when tested by the standard of 300 cubic feet of airspace per head; in three cases there is sufficient washing accommodation for lodgers, but in nine there is only the kitchen slopstone, and in one instance merely a tap in the yard. In nearly every case the closet accommodation is unsatisfactory or insufficient. In two instances the yards are very small and confined. The licensees of "The Hen and Chickens" and "Kershaw's Lodging-house" were found to be receiving lodgers in adjoining unregistered houses.

## UNREGISTERED COMMON LODGING-HOUSES.

No less than 22 unregistered common lodging-houses, receiving some 100 lodgers altogether, are known to exist in the Borough (vide list appended), and the keepers have almost invariably defended themselves by stating that as they only received *weekly* and *not nightly lodgers*, their premises need not be registered. This contention appears to be based upon a definition in the Towns Improvement Clauses Act, 1847, Sec. 116.

The Public Health Act, 1875, contains, however, no exact definition of a common lodging-house, but in 1853 the Law Officers of the Crown advised that the term had references "to that class of lodging-house in which persons of the poorer class are received for short periods, and **though strangers to one another are allowed to inhabit one common room.** . . . . . By the word "strangers to one another," the Law Officers distinguished "lodgers promiscuously brought together," from "members of one family or household," and they further advised that "**the period of letting is unimportant in determining whether a lodging-house comes under the Act** now in question."

In a Memorandum dated the 25th July, 1877, the Local Government Board state that it may be inferred that the common lodging-houses under the Public Health Act, 1875, come within the definition based upon "the habitation of a common room" by "lodgers who are strangers to one another in the sense of not being members of one family or household," and Sec. 87 of the Public Health Act, 1875, throws the burden of proof on the persons who allege that they are members of the same household.

The Local Government Board further remarks that the decision in *Langdon v. Broadbent* "points to the conclusion that in deciding whether a given "house is or is not a common lodging-house within the meaning of the Public "Health Act, regard should in each case be had to the consideration whether "the circumstances of its occupation are or are not such that supervision by "the Local Authority will be necessary in order to secure the needed cleanli- "ness, ventilation, good ordering, etc."

I am of opinion that all the 22 listed unregistered houses come within the foregoing definition, and are such that supervision by the Local Authority is essential to their good ordering, for such places are open channels for disease to enter and become spread through communities, in proof of which

I would remind you of the smallpox outbreak in 1893, when of the 28 cases reported, 20 were inmates of common lodging-houses.

On the other hand, I cannot see my way to recommend that these unlicensed and unsuitable houses should be placed upon your register, for under the existing law, the rule is "once a registered lodging-house, always a registered lodging-house," unless the licensee has, *as such*, been three times convicted of an offence against the Public Health Act, or unless the Health Officer can obtain closure by certifying, under the Housing of the Working Classes Act, 1890, that the house is unfit for human habitation. Now, quite obviously, a house which is not unfit for human habitation may be quite unfit for a common lodging-house, and one reason for your asking Parliament in Sec. 101 of the Stockport Corporation Bill, 1899, for power to require

#### ANNUAL REGISTRATION OF COMMON LODGING-HOUSES,

is in order to be able to deal eventually with the unsuitable places at present registered. Such a requirement would, in addition, (1) conduce to the better condition and ordering of all the registered houses in the Borough, and (2) enable you to license *temporarily* some of the least objectionable of those unregistered places which are structurally unworthy of *permanent* registration. These places would thus be brought under regular sanitary supervision until, by municipal or private enterprise, sufficient suitable registered accommodation is provided.

Apart from the foregoing special circumstances, which are so accentuated in Stockport, I would remark that the premises of knackers, game dealers, licensed victuallers, music hall and theatre owners are subjected to yearly revision of their licence, and under the Public Health (Acts) (Amendment) Act, 1890, Sec. 29, you possess the power of limiting to 12 months the licence for any new slaughter-house. It therefore seems somewhat anomalous that common lodging-house licensees should enjoy this remarkable exemption from annual revision.

The Burgh Police (Scotland) Act, 1892, Sec. 284, confers on municipalities the power to require the closure *without compensation*, of all private slaughter-houses, after a period of grace of three years from the public announcement that the use of ~~private~~<sup>public</sup> slaughter-houses is obligatory.

If Parliament refuse power to require annual licensing of common lodging-houses, it would be well, if possible, to obtain a power similar to that relating to Scotch slaughter-houses, to close unsatisfactory registered common lodging-houses, *after a period of warning*, and provided sufficient satisfactory registered accommodation then existed for the displaced lodgers.

#### NEED FOR FURTHER COMMON LODGING HOUSE ACCOMMODATION.

The overcrowded state of the registered common lodging-houses and the large number of unregistered dwellings so used are sufficient proof of the pressing need for additional registered accommodation. In addition, the "Hen and Chickens," which shelters 41 registered lodgers, and No 12, Bamford Street, which houses 15, are both unfit for further use, and should be closed.

## MODEL LODGING-HOUSES PRIVATELY OWNED.

The additional accommodation required might, of course, be supplied by private enterprise. I am personally aware that in Edinburgh a model common lodging-house has proved a remunerative investment to its promoters, and, in London, Lord Rowton's well-known undertaking, which accommodates 700 sleepers, earns a six per cent. dividend, but in the opinion of the manager the financial success of a smaller house in the same sumptuous style would be doubtful.

I may mention that the Church Army is about to open, in Hillgate, a common lodging-house which possesses a cubic capacity sufficient for about 100 beds.

## MUNICIPAL MODEL LODGING-HOUSES.

Under the Housing of the Working Classes Act, 1890, Part III., the Local Authority may on any land acquired or appropriated by them erect any buildings suitable for lodging-houses for the working classes, and convert any buildings into lodging-houses for the working classes, and may alter, enlarge, repair, improve, fit up, furnish and supply the same respectively with all requisite furniture, fittings, and conveniences.

This has been done in London, Glasgow, Salford, Huddersfield, Darwen, &c.,

Dr. Russell, the much respected Health Officer for Glasgow, speaks in the highest terms of the social benefit resulting from the Corporation's work in this respect, and Bailee Chisholm, in a recent paper on the Glasgow City Improvement Trust, says that they now own seven lodging-houses with accommodation for 2,200 lodgers. Each man or woman has a separate cubicle, the use of kitchen, cooking utensils, dining-room, recreation-room, ample bath, lavatory, and clothes-washing accommodation; each sleeper is allowed from 384 to 435 feet of cubic space; and the inclusive cost for 24 hours is a sum varying from  $3\frac{1}{2}$ d. to  $4\frac{1}{2}$ d. The lodging-houses "have been an unmixed blessing to the poor, thrifless, and forgetful class who frequent them," and have yielded a yearly return averaging from £3 14s. 9d. to £6 11s. per cent. on the gross cost.

In Huddersfield, the Municipal Common Lodging-house has 173 beds for males, 12 for females, and nine double beds; total 194. The total capital expenditure was £7,000, and for the past three years the annual expenditure (including alterations) has averaged £1,032, as against an average annual income of £987.

## BYE-LAWS.

An excellent code of bye-laws for the regulation of Common Lodging-houses was adopted by the Corporation in 1865 pursuant to the provisions of the Public Health Act, 1848, and, as far as it goes, is quite equal to the corresponding bye-laws in the present model code of the Local Government Board.

The latter (i.e. the model code) is made pursuant to Sec. 80 of the Public Health Act, 1875, and deals with the following matters which are not covered by your present code, viz.:—

1. The regulation of sleeping accommodation for married couples (No. 54).
2. The cleansing of yards &c., No. 5).
3. The cleansing of windows, woodwork, &c. (No. 7).
4. The removal of refuse (No. 10).
5. The maintenance and cleansing of water closets, ashpits, &c. (No. 12, 13).
6. The prohibition of kitchens as bedrooms (No. 19).
7. The joint occupancy of beds by males (No. 20).
8. The re-occupation of beds within eight hours after vacation by last occupant (No. 21).

It would, therefore, be obviously better to adopt the model code, of which copies are submitted herewith.

#### CONCLUSIONS AND RECOMMENDATIONS.

1. That the existing registered common lodging-house accommodation in the Borough is insufficient ; many of the existing houses are overcrowded and otherwise unsatisfactory, and at least two of them should be closed.
2. That 22 unregistered houses receiving about 100 lodgers are known to exist ; such houses need constant sanitary supervision, and there is at present no available registered accommodation for their inmates.
3. That the powers sought for by the Corporation to grant yearly licences, is, in the case of Stockport, specially necessary to keep these *unregistered* houses under supervision till better accommodation is provided, and also in order to deal eventually with unsatisfactory *registered* houses.
4. That the attention of the Local Government Board be drawn to these special circumstances in view of the Board's forthcoming report on the Corporation's Bill.
5. That the provision of additional and suitable registered accommodation is a pressing necessity.
6. That the Medical Officer of Health be empowered to prepare and issue fresh certificates fixing the number of lodgers for each licensed room, and to require each registered house to be provided with sufficient water-closet accommodation.
7. That the adoption by the Corporation of the model code of Common Lodging-House Bye-Laws is desirable.

I have the honour to be,

Gentlemen,

Your obedient servant,

CHARLES PORTER, M.D.

*Medical Officer of Health.*

Health Office, Stockport.

17th April, 1899.

# UNREGISTERED COMMON LODGING - HOUSES.

Reference No.	Address.	Beds. D—double S—single	No. of Rooms	Average capacity of Rooms per person.	No. of Rooms below standard of 300 cubic feet air space per head.	Washing Accommodation.	Closet Accommodation.	Yard.	Remarks.
1	Cellar, 4, Vale-street (Mrs. Bruckshaw)	2 D = 4	1	375	—	Water tap only.	Privy-pit for 10 houses.	Flagged.	Dirty and quite unsuitable.
2	15, Canal-street (John Barratt)	1 D = 12 10 S = 12	3	426	—	Slopstone.	Do.	Unpaved.	Under repair.
3	2 and 6, Clove-court (John Barratt)	7 S = 7	2	326	—	Do.	Do.	Do.	Recently cleaned & repaired. No. 2 is a cellar dwelling.
4	4, Covent Gardens (Young)	5 S = 5	2	350	—	Do.	Dilapidated privy.	Flagged.	House old, dirty, and unsuitable.
5	19, Garnett-street (Michael Sullivan)	8 D = 16	3	370	1	Do.	Privy-pit for 3 houses.	None.	Very clean & well kept; ventilation of lower rooms bad.
6	29, High-street (Mrs. Kelly)	11 D = 22	4	269	2	Do.	Water-closet.	Cobbled.	Quite unsuitable, and very dirty.
7	3, High Bank Side (Hannah Greavy)	3 D = 6	1	286	1	Slopstone in very dark back room.	Privy-pit for 12 houses.	No yard space at back.	Back to back; old, dirty, and unsuitable.
8	21, High Bank Side (Mrs. Maloney)	3 D = 6	2	394	1	Slopstone.	Privy-pit for 6 houses.	Cobbled.	Good house and kept clean.
9	27, High Bank Side (Mrs. McKinsey)	3 D = 6	1	244	1	Do.	Do.	No yard space at back.	Back to back; quite unsuitable.
10	33, Daw Bank (Mrs. Cronin)	2 D = 4	1	253	1	Do.	Privy-pit for 4 houses.	Unpaved.	House old and unsuitable, but fairly well kept.
11	24, Brook-street West (Sarah Oldham)	2 D = 4	1	357	—	Do.	Privy for 6 houses.	Flagged & cobbled.	House clean and in good repair.
12	32, Bann-street (Ann Joules)	3 D = 6	3	441	—	Do.	Privy for 8 houses.	Unpaved; bad repair.	House dirty.
13	43, Chestergate (Mary Walsh)	7 D = 14	4	298	3	Do.	Privy-pit for 2 houses.	Cobbled & bricked; bad repair.	Old, dirty, and unsuitable.
14	39, Chestergate (Catherine Owen)	6 D = 14 2 S = 14	4	351	—	Do.	Water-closet for 2 houses.	Cobbled; small and confined.	Old, unsuitable; very dirty.
15	33, Chestergate (Denis Summers)	8 D = 17 1 S = 1	4	368	1	Wash-house at back.	Do.	Do.	Very old house; not clean.
16	7, Chestergate, (Catherine Blake)	5 D = 10	3	372	2	Slopstone.	1 water-closet.	Paved, but small and well-like.	Old, but fairly clean.
17	3, Adlington-square (McGarry)	6 D = 14 2 S = 14	4	354	1	Do.	Do.	Flagged, but out of repair.	Clean and very well kept; house old.
18	5, Adlington-square (Thomas Cornell)	7 D = 14	3	233	3	Do.	Do.	Bricked & flagged; out of repair.	Old, badly kept, unsuitable.
19	7, Adlington-square (Jno. Bohen)	4 D = 9 1 S = 1	2	351	—	Do.	Do.	Flagged and clean.	Old and unsuitable.
20	22, Adlington-square (Mary O'Loughlin)	2 D = 4	1	478	—	Do.	Privy-pit for 6 houses.	Partly bricked.	Do.
21	10, Adlington-square (Kershaw)	1 D = 8 6 S = 8	3	315	2	Do.	Privy-pit for 5 houses.	Cobbled; bad repair.	Old, but fairly clean.
22	13, Back Water-st. (Thomas Moores)	3 D = 6	2	324	—	Do.	Privy for 7 houses.	Cobbled yard.	House dirty & unsuitable.



**REGISTERED LODGING HOUSES.**

Address.	Register- ed No. of Lodgers.	Beds. D=Double. S=Single.	No. of rooms.	Average capacity of rooms per person.	No. of rooms below standard of 300 cubic ft. air space per head.	Washing accom- modation.	Closet accommodation.	Yard.	Unpaved	Old, dirty, and badly kept.
										Remarks.
29 Daw Bank ...	15	7 D=14	2	215	2	1 slop- stone	1 privy shared with next house	1 w.c.	Paved	Fairly well kept; closet ac- commodation insufficient.
Adlington Sq. (Brennan's) ...	30	13 D=33 7 S	7	371	4	1 slop- stone	W'shh'se in yard	3 w.c.'s (trough)	Paved	The licensees of this house are receiving lodgers in an unregistered house next door.
Adlington Sq. (Kershaw's) ...	78	15 D=77 47 S	18	314	8	1 slop- stone	1 dilapidated privy	1 dilapidated privy	Paved	Old, out of repair, and very badly kept. Licensee is receiving lodgers in an unregistered house next door.
Hen & Chickens...	41	1 D=46 44 S	9	332	2	1 slop- stone	Tap in yard	Very bad form of privy	Paved	House well kept, but much over- crowded; closet accommodation altogether unsatisfactory.
15 Watson Sq. (Fitzpatrick's)	35	7 D=35 21 S	8	264	6	2 slop- stones	2 old privies	2 old privies	Cobbled	House fairly kept; closet ac- commodation unsatisfactory.
11 & 13 Watson Sq. (White's).....	31	13 D=31 5 S	6	324	4	1 slop- stone	1 pail	1 pail	Partly flagged, partly cobbled	Old and not very well kept.
1 & 3 Bamford St. (Mottram's) ...	15	5 D=11 1 S	3	334	—	1 slop- stone	Old offensive privy	1 slop- stone	Cobbled; small and confined	Building unsuitable; closet ac- commodation unsatisfactory.
12 Bamford St. (Mottram's) ...	15	7 D=15 1 S	3	208	3	1 slop- stone	2 privies, used also by two other houses	1 slop- stone	Cobbled	Well kept; closet accom- modation unsatisfactory.
Bamford St. (Spilsbury's)...	32	14 D=32 4 S	6	295	4	2 slop- stones	2 privies	2 slop- stones	Cobbled	Fairly well kept; closet ac- commodation unsatisfactory.
21-25 Tollbar St. (Barratt's).....	40	3 D=31 25 S	7	282	5	2 slop- stones	2 privies	1 w.c.	Flagged	Old, but fairly well kept.
Small St (Rowland's) ...	15	7 D=16 2 S	4	261	3	2 slop- stones	2 privies	Wash- house	Paved with setts	Very well kept; closet accom- modation insufficient.
Union St. (Marland's) ...	126	9 D=101 83 S	12	433	—	2 waste water closets	2 waste water closets	Wash- house	1 yard paved, 1 yard unpaved	Suitable, but badly kept; closet accommodation unsatisfactory.
Hr. Hillgate (Smith's) .....	107	5 D=78 68 S	12	325	3	3 privies	3 privies	Wash- house		

## APPENDIX B.

## NOTICE.

COUNTY BOROUGH OF STOCKPORT.

## TO PREVENT DAMAGE BY FROST TO WATER-CLOSET FITTINGS.

- (a) The supply pipe to the flushing-cistern should be provided with a stop-tap, and be wrapped in felt or straw in its full extent above the ground, and for 18 inches beneath the ground level.
- (b) The cistern or flushing tank should be boxed in, and have the intervening space filled with sawdust.

## IN TIMES OF SEVERE FROST.

- (1) **Keep the doors of outside Closets closed** to protect the fittings from the wind.
- (2) **Shut off the stop-tap** of the cistern-supply-pipe every night.
- (3) **Then empty the cistern** by pulling the chain.
- (4) **Throw a large handful of common salt into the closet-basin** every night after pulling the chain. This will have the effect of lowering the freezing point of the water in the closet trap by 18 degrees fahrenheit.

By Order of

THE SANITARY COMMITTEE.

Sanitary Office,  
November 1st, 1898.

## APPENDIX C.

## SPECIAL REPORT.

Presented to the Chairman and Members of the Sanitary Committee  
on October 3rd, 1898.

*"On the Quantity of Water required for Domestic Flushing Purposes, and the Influence of Intercepting Traps thereupon."*

Gentlemen,—

The water-carriage system of refuse disposal, which is yearly becoming increasingly prevalent throughout the country, aims at the cleanly and rapid removal through drains of excremental matter from the neighbourhood of dwellings. For its successful application and working, adequate flushing of water-closets and house drains is absolutely essential, in order to prevent the latter from becoming "nothing better than elongated cesspools charged with foul festering filth," as was shown to be the case at Maidstone. The recent Government Report on the typhoid epidemic in that town tells us that half its 6,000 and odd houses have water-closets without any mechanical means of flushing, and that the Sanitary Authority's lamentable "failure of duty in this respect has led to the gravest consequences," a large number of the typhoid cases being officially ascribed to soil and air-pollution from blocked and defective drains. In advocating conversion to water-carriage we ought therefore to satisfy ourselves that the public health is protected from the results of such deficiencies, and with this object in view you directed me in April last to ascertain experimentally the quantity of water required to efficiently flush a water-closet with drain and intercepting trap.

Upwards of 120 experiments were shortly afterwards carried out on the lines adopted by the Sanitary Institute in 1893, the apparatus used being the following:—

(a) Duckett's *Wash-down* Closet, with S-outgo, and afterwards a *Unitas Wash-out* Closet.

(b) Water-waste-preventing cistern graduated for 6, 4,  $3\frac{1}{2}$ , 3,  $2\frac{1}{2}$ , 2 and  $1\frac{1}{2}$  gallons, and connected to closet by 5ft. of  $1\frac{1}{4}$  in. vertical lead piping.

(c) 47 ft. of glazed earthenware 6 in. and 4 in. pipe drain, with puddle joints, and having a right-angled curve one pipe's length from closet outgo. In upper surface of each length of pipe was cut a slot 15 in. to 18 in. long and about 2in. in width, for inspection purposes.

(d) Disconnecting traps (or "interceptors") of a good type, attached to end of drain, discharging over a weighed pail, and having glass windows inserted in the lowest part or "throat."

Fæcal matter and paper, from a "Rochdale Pail," filled by *actual use* at a mill, were used for charging the closets, 4 oz. to 6 oz. being employed in most cases, but 8 oz. and 12 oz. were used in a smaller number. In the Sanitary Institute experiments artificial material was used for this purpose.

*The First Series of Trials* (50 in number) were made with a 4-in. drain (fall 1 in 40) and 4-in. disconnecting trap. This trap was filled by 4 pints of water, and at the lowest part measured  $3\frac{1}{2}$  in. transversely and 4 in. vertically. Flushes of 3,  $2\frac{1}{2}$ , 2 and  $1\frac{1}{2}$  gallons were employed, the result being that 3 gallons invariably sufficed to thoroughly flush closet, drain, and 4-in. trap; a  $2\frac{1}{2}$ -gallon flush generally failed to clear the 4-in. trap; with 2 gallons the interceptor was not once cleared, and most of the solids were left in the trap. By repeated 2-gallon flushes in rapid succession causing a head of water in the drain, the trap was eventually cleared with a rush, but this did not happen if one flush were allowed to trickle away before the next followed it. A  $1\frac{1}{2}$ -gallon flush was found to be of little use. The drain was never cleared and became rapidly blocked.

*The Second Series* included 21 experiments, and was made with a 6-in. drain (fall 1 in 60) and 6-in. disconnecting trap, which, it is noteworthy, required 12 pints of water to fill it, and at its lowest part measured  $5\frac{1}{8}$  in. transversely and  $5\frac{3}{8}$  in. vertically. Flushes of 6, 4,  $3\frac{1}{2}$ , 3, and  $2\frac{1}{2}$  gallons were used, and it is a remarkable fact that though three gallons and upwards sufficed to clear the closet and drain each time, the 6-in. trap was cleared by a 6-gallon flush in only 2 out of four cases; 4 gallons cleared it in only 1 out of 6 cases, and anything less than 4 gallons altogether and repeatedly failed to clear the trap.

*The Third Series* numbered 22 experiments with a 6-in. drain and a 4-in. intercepting trap. With a 3-gallon flush the closet, drain and trap were efficiently cleansed every time, but a flush of less than three gallons failed each time to clear the drain and to reach the trap.

*The Fourth Series* (18 trials) with a Unitas wash-out closet, 4-in. drain and 4-in. interceptor; flushes of 3,  $2\frac{1}{2}$ , and two gallons were used; 3 gallons sufficed to clear the trap in 2 out of 6 cases. With smaller flushes, the trap retained a portion of the charge in every case; in 5 cases the drain was not cleared, whilst in 8 the closet trap was not cleared, due evidently to the inherent faults of the wash-out closet.

I shall be pleased to supply fuller details of these results, if desired, and I venture to submit the following

#### CONCLUSIONS.

1. *That 3 gallons is the minimum amount that can be relied upon for efficient flushing*, i.e., prompt carriage of dejecta through closet, drain and interceptor to sewer, even with a good form of wash-down closet, well laid 4-in. or 6-in. drain, and good 4-in. interceptor.

2. *That if an inferior type of closet be used or if the intercepting trap exceed 4 in. in diameter, 3 gallons is clearly not sufficient for effective flushing*. The proper remedy then, however, is to correct such structural deficiencies rather than to increase the flush.

3. That if no intercepting trap be employed a flush of  $2\frac{1}{2}$  gallons is the minimum amount that can be relied upon to efficiently cleanse the closet-trap and drain.

4. That the invariable employment of a disconnecting trap as recommended by the Model Bye-laws is far from being an unmixed benefit, and owing to the obstacle which the disconnecting trap presents to the cleansing of house drains, its use should, unless the public water supply be unusually ample and cheap, be strictly limited to those dwellings inside which a drain opening exists, e.g. in the cellar, and that if such drain openings inside houses were prohibited in new dwellings disconnecting traps might, with great advantage, be entirely dispensed with.

There is much reason to believe that we have hitherto exaggerated the noxiousness of sewer air ; assuming, however, that it is injurious in its effects, the object of a disconnecting trap is wholly gone if we keep all drain openings outside our dwellings, and having done this it is, I think, unnecessary to continue to insist on disconnecting traps which only diminish the efficiency of the water-flush.

I am, Gentlemen,

Your obedient servant,

CHARLES PORTER, M.D.,

Medical Officer of Health.

